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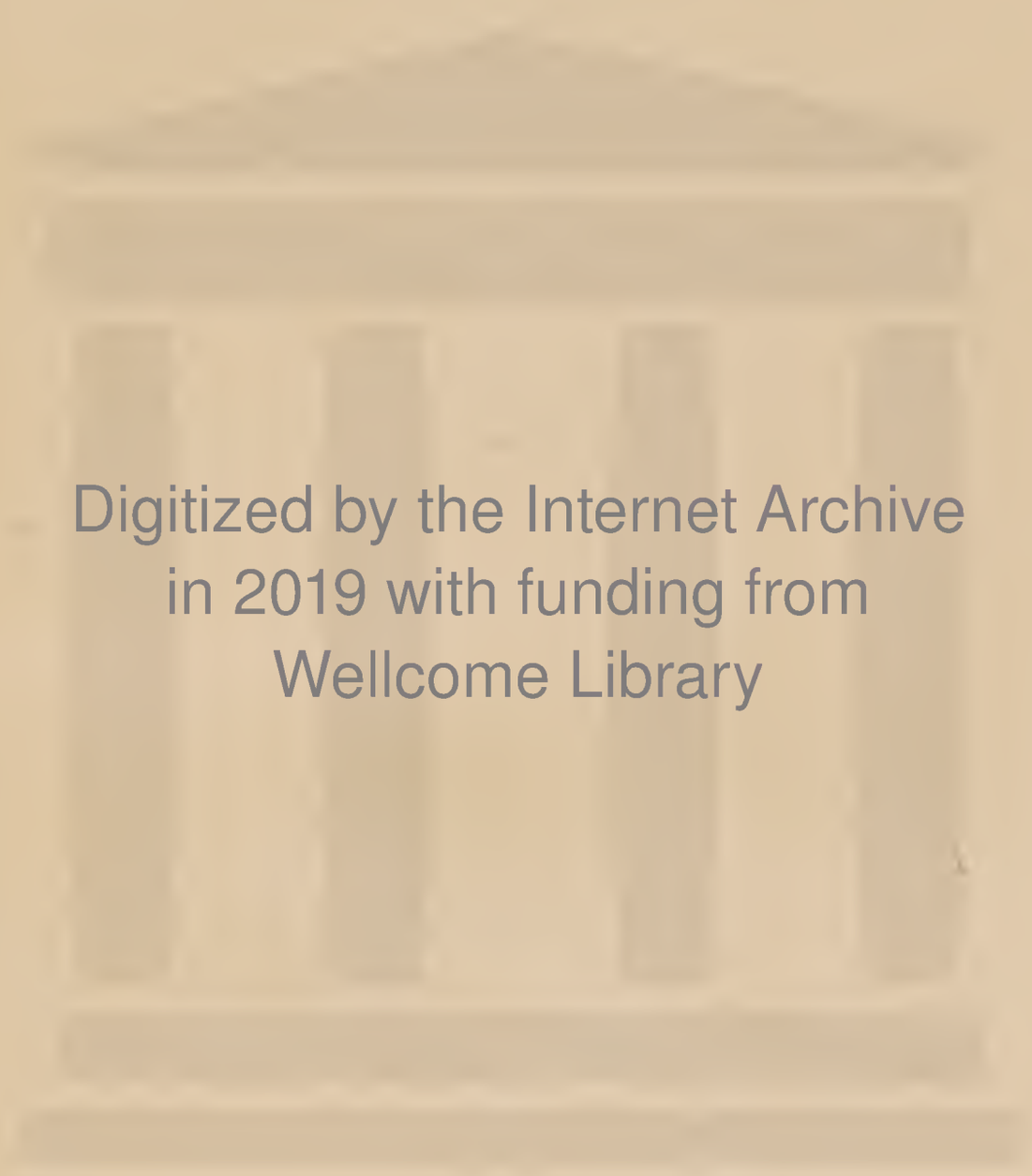

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THE

DUBLIN HOSPITAL REPORTS,

AND

COMMUNICATIONS

IN

MEDICINE AND SURGERY.

VOLUME THE FIFTH.

DUBLIN:

HODGES AND SMITH, COLLEGE-GREEN.

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PREFACE.

SEVERAL Papers which ought to be arranged under the head of Hospital Reports, in the first Part of this Volume, will be found among the Miscellaneous Communications in the second Part; in explanation of which it is necessary to mention, that the first Part had been printed long before these Papers were either received or expected, and therefore they were included in the second Part. It is to be regretted that several communications have been received too late for insertion, among which is an account of two cases of Traumatic Tetanus, successfully treated in Mercer's Hospital by Mr. Palmer with Tartar Emetic.

Arrangements having been made to ensure the co-operation of the Physicians and Surgeons of most of the Dublin Hospitals, it

is hoped that the Reports will in future contain a much more extensive series of Hospital Communications, and consequently it is intended to publish them at shorter intervals. The first Part of the sixth Volume will appear on the 1st of March, 1832.

Contributions to this Work may be sent to Messrs. Hodges and Smith, College-Green, Dublin.

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CLINICAL REPORT

OF

CASES IN THE MEDICAL WARDS

OF

THE MEATH HOSPITAL,

DURING THE SESSION OF 1828 AND 1829,

BY

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DISEASES OF THE ARTERIAL SYSTEM.

ARTERITIS.

Gangrene and Paralysis of the right lower Extremity, arising from disease of the Femoral and Iliac Arteries.

PATRICK Magrath, aged 44, of a strong habit, was admitted on the 7th of February 1829, labouring under loss of power of the right lower extremity.

For the last six months this man had been exposed to severe hardships. In the beginning

of December, 1828, he was first affected with alternating sensations of cold and burning heat in the toes of the right foot. The same sensasations, soon after, were felt in the leg, accompanied with formications, and diminished power of the limb. Pains in the foot next supervened, and in the course of a month the part became cold, and was totally deprived of sensation.

On the day of his admission he had attempted to walk to the hospital, when the pain suddenly extended to the calf of the leg with violence. From this time he lost all power of motion in the leg.

The constitutional symptoms since the beginning of this disease were prostration of strength, anorexia, and constant thirst.

On admission his intellects were perfect, and the temperature of the body, with the exception of the affected limb, natural. The pain had extended to the thigh during the night; pulse 96, small and soft. On examining the limb we found its temperature to be about 58° of Fahrenheit, and observed some œdema at the ankle and foot. There was complete loss of sensation from the middle of the thigh to the toes; the patient could rotate the thigh slightly, but no other voluntary motion of the limb was

possible. The femoral artery appeared like a hard cord; it was painful on pressure, and no pulsation could be felt in the vessel. We further discovered, by the assistance of the stethoscope, that pulsation was wanting in the external and common iliac arteries on this side, while that of the left iliacs was plainly perceptible.

From these observations we came to the conclusion, that the right common and external iliacs, and the femoral artery, were in a state of permanent obstruction, which would account for the state of the limb.

Warmth was applied to the limb, and opiates exhibited. In the course of the night the limb became of the natural temperature, the œdematous swelling extended to the hip, purplish patches appeared at the ham, and the thigh became painful on pressure. Leeches were applied in abundance, and opium freely administered. On the 10th the thigh was more swollen, and presented many vesications; considerable tenderness: temperature 88°. He died the following morning.

DISSECTION.

No emaciation; the right lower extremity swollen and of a purple colour.

The brain, lungs, and abdominal viscera, were carefully examined, but nothing remarkable was observed, except that all these parts were unusually exsanguineous. A few crude tubercles were found at the superior portions of both lungs.

The heart presented the left ventricle in the state of active aneurism, with some thickening and opacity of the aortic valves. The ascending portion and arch of the aorta were perfectly healthy, nor could any disease be discovered in the carotid or subclavian arteries, but in the innominata we observed some red patches where the lining membrane was thickened and softened. The descending aorta was healthy to within six inches from its bifurcation; here a slender red fibrinous clot was found stretching nearly to the bifurcation; beneath this clot the lining membrane was of a deep red colour, thickened and soft.

The right common iliac, when viewed externally, appeared distended and livid; the left apparently healthy. On slitting down to the bifurcation, we found that the former vessel was completely plugged up from its origin by a dark clot, which extended to the external and internal iliacs, and also engaged the gluteal and obturator arteries. The same disease was found in

the femoral and profunda, and extended to the origin of the anterior and posterior tibial arteries, which vessels, including the peroneal, presented a similar appearance as far as they could be traced.

Along the course of the diseased vessels, the lining membrane of the artery was found soft and thickened. It had a somewhat villous appearance, and greatly resembled an inflamed mucous membrane. In some portions the clot was separated from the vessel by a layer of dark coloured puriform matter, in others it was adherent. The clot in the tibial arteries was not red, and much firmer than in the femoral and iliac arteries.

In the left common iliac we found the lining membrane of a deep red colour, and the vessel contained some portions of coagulable lymph. The external iliac, and femoral arteries of this side were perfectly healthy.

No disease whatever could be detected in the veins of the affected limb.

A large portion of the vasti and rectus muscles was hardened, and deprived of colouring matter. The cellular tissue œdematous; periosteum red but not softened.

ANEURISM OF THE ABDOMINAL AORTA. DISPLACEMENT OF THE HEART. DOUBLE PULSATION OF THE SAC. SUDDEN DEATH.

Robert Hamilton, aged 29, a locksmith. March 12th, 1829. This man was admitted labouring under the most distressing palpitation of the heart, which he stated was of three months standing. The history of the case, as obtained from himself, is as follows:

He had enjoyed good health until the beginning of November, 1828, when after exposure to cold he contracted severe pains in the loins, extending towards the umbilicus, and accompanied by a fit resembling convulsive colic. This pain of the loins presented occasional exacerbations, and was then pulsative; he referred the pulsations to the left iliac fossa.

This disease had been treated as rheumatism. Bleeding, both general and local, blistering, the use of turpentine, with other remedies, were tried, but failed to give relief. In about a month he experienced severe pain in the region of the heart, succeeded by palpitation, which has continued to the present time.

Since the commencement of this attack he

uniformly experienced relief by lying on his face and right side; he could not turn on the back or left side without great pain.

On his admission we were struck with his pale exsanguineous appearance and the distressed expression of his countenance. His appetite was good, but his bowels generally costive. There was no cough, nor was any part of the body œdematous.

The impulse of the heart was greatly increased, and appeared to be communicated from an extensive surface. This impulse was still further augmented by any change of position, but particularly by turning on the back or left side, when it was felt over the anterior portion of the thorax and in the epigastrium.

Examined by auscultation, the pulsations of the heart were heard over the whole chest. During excitation we could observe a *bruit de soufflet* accompanying the action of the ventricles. Respiratory murmur every where natural.

Considering the character of the pain in the back; its being succeeded after a month's duration by palpitation of the heart; its obstinacy and remarkable aggravation by decubitus on the back or left side, we came to the conclusion

that there was disease in some portion of the descending aorta, and that the morbid action of the heart was consequent on this. At this time we made accurate examinations, with a view to discover the suspected lesion, but failed to find any additional evidence of disease.

The patient was treated by the application of leeches to the loins, a very low diet, anodynes, occasional purgatives, and complete rest. In the course of a week the morbid action of the heart was completely reduced; but still, whenever he turned on the left side it became immediately excited, and subsided to its natural standard on his resuming his usual position.

On the eleventh day of his admission, a pulsating tumour was detected on the left side, on a level with the last dorsal vertebra. This pulsation was diffused over a space of about two square inches, which was tender to the touch; it was not accompanied by any *bruit de soufflet*, but this sound was audible in the epigastric region. He complained of pain in the tumour, increased by pressure, which also produced a feeling of nausea, and a sensaton as if some fluid was ascending towards the chest.

Leeches and Ice to the tumour. Use of Digitalis.

The tumour gradually increased, but the pain

and general distress were so much diminished that the patient left the hospital in the beginning of May. For some time his strength improved, and he lost the exsanguine appearance. He was re-admitted on the 15th of June: about three weeks previously he had attempted to resume his occupations, when he suddenly became much worse.

The tumour was not found to have increased in size, and there was no external lividity, but the pain was greatly increased, particularly at night; he then compared it to a sensation as if the bones of the pelvis were separating. The trunk was now considerably bent to the left side.

On examining the tumour a distinctly double pulsation was observable, the first stroke coinciding with the diastole of the radial artery. Two sounds were also to be heard corresponding to the pulsations of the heart, the first dull, the second clear. These phenomena bore the greatest resemblance to those produced by an hypertrophied heart.

Use of Digitalis. Cold applications to the tumour.

The tumour continued to increase. He now complained of great pain during the act of passing urine; the pain was referred to the

lower part of the tumour, and subsided as soon as the act was over. This pain was severe in proportion to the distension of the bladder.

In a short time we observed that the heart was displaced; at first it was found to beat in the epigastrium, the impulse having left the usual situation. In the course of a few days it became feebler in the epigastrium, but could be felt pulsating on the right side, at the sternal end of the fifth rib, and ultimately became fixed in the intercostal space of the third and fourth ribs. Here the sound of its contractions was plainly audible, while in the natural situation they could scarcely be heard.

Soon after this occurrence he again left the hospital and indulged freely in spirituous liquors: violent action of the heart supervened, and on the following day a dreadful fit of convulsions, with pain of the abdomen and back, came on, during which he suddenly ceased to exist.

His death took place in three months from the appearance of the tumour. Dissection was not allowed.

ANEURISM OF THE ASCENDING AORTA, CONTINUING FOR UPWARDS OF FIVE YEARS. DOUBLE PULSATION OF THE TUMOUR. ABSENCE OF SYMPTOMS OF DISEASE OF THE HEART.

Peter Dowling, aged 38, of a spare habit. This man was admitted on the 27th of July, 1829. He had enjoyed good health until July, 1824, when after a violent fit of passion, he experienced, for the first time, an attack of palpitation of the heart. This continued for three days, when a small pulsating tumour appeared between the sternal terminations of the fourth and fifth ribs on the left side. The palpitation subsided, but the tumour did not disappear. He soon was able to return to his occupations, and the disease, for nearly the ensuing five years, produced no effect on his general health or powers of exertion. About ten weeks previous to his admission he was exposed to cold and wet, after which he contracted a cough, which continued with occasional fits of dyspnœa and orthopnœa to the time of his admission.

We then observed a pulsating tumour about the size of a walnut, close to the left side of the sternum, occupying the situation of the end of the fourth rib, which appeared to have been absorbed: it was of a quadrilateral shape, longer

in the perpendicular than in the horizontal direction. There was no lividity of the surface, but the sac approached close to the skin. During its systole we could feel the smooth and slightly rounded edges of the opening in the parietes of the thorax.

This tumour had a distinct double pulsation, answering to the motions of the heart, and perceptible to the touch, as well as by auscultation. Its sounds were heard over the left side and superior portion of the right.

The impulse and sound of the heart were feeble, and the chest sounded dull in the vicinity of the tumour and the region of the heart. Respiratory murmur, generally marked by a sonoro-mucus rale.

He was treated for the bronchitis, and experienced great relief: he then left the hospital, and has since remained at his business.

In commenting on the foregoing examples of disease of the arterial system, we shall follow the order in which they have been given.

In the highly interesting case of Arteritis, it

would appear, that the disease had first commenced in the extreme branches of the arteries of the foot, and had gradually extended from below upwards. The symptoms are in favour of this opinion; the numbness and alternating sensations of heat and cold occurring first in the toes, and afterwards engaging the foot and leg; the extension of the pain upwards, and the coldness of the foot, existing at a time when the thigh preserved its natural temperature, all point out that the obstruction did not, in the first instance, commence in the larger trunks.

But the appearances on dissection furnish a still more satisfactory evidence of the truth of this opinion. The consistence of the clot decreased from below upwards. In the lower portions of the arteries of the leg it was extremely firm and pale, while in the femoral and iliac arteries it was soft and red. Here also the lining membrane of the vessels shewed marks of recent disease, not observable in the arteries of the leg, namely, redness, softening, and puriform exudation. The existence of redness and softening, with the presence of a coagulum in the lower portion of the aorta, and in the left common iliac, make it highly probable that here was the latest effect of the disease; and that, had the patient lived longer, the aorta itself would have become obstructed.

The occurrence of coloured clots adhering to, and derived from the inflamed portions of the aorta and left common iliac, in which the current of the blood had flowed freely, is worthy of notice, and seems to suggest the idea, that the fibrinous coagulum found in inflamed arteries differs from that of aneurismal sacs, and is not altogether derived from the coagulation of blood arrested in its course in consequence of the obstruction. Indeed it is highly probable that the exudation of lymph from the inflamed internal tunic of the artery, is the first cause of obstruction to the flow of blood through the diseased vessel. In the smaller trunks it must very soon fill up the calibre of the artery; in the larger the continued clot probably results from a double source, exuded lymph and coagulated blood.

In this case the extreme coldness of the limb pointed out, in the first instance, that the circulation was obstructed. Coldness occurs in some cases of paralysis from disease of the nervous system, but it is slight: here the temperature of the affected limb was 30° below the natural standard. This great coldness, and the slight and but little extended œdema observable on the admission of the patient, shewed that the obstruction existed in the arterial rather than in the venous system, and this was borne out by

the absence of pulsation in the femoral artery, as observed by the touch, and in the iliacs by auscultation. The latter observation, which we believe to be the first of the kind, was made with great ease and certainty. Having traced the pulsation of the aorta with the stethoscope, we followed the course of the vessel to the umbilical region, where the pulsation could be distinctly heard passing to the left side in the direction of the common iliac. This, however, was altogether wanting in the course of the right common iliac; and as no tumour existed in this situation, it was plain that the absence of pulsation denoted obstruction of the right common iliac artery.

One of the most interesting circumstances in the case, is the occurrence of inflammatory action in the cellular tissue and skin of the affected limb. It is evident, that as long as the current of blood into the limb took place through the natural channels, the circulation was diminished in proportion as the arterial ramifications became diseased; the extreme parts being first affected, and afterwards the whole limb. During this state of things, the want of feeling and coldness kept pace with the progress of the arteritis.

But when the inflammation had caused a total obliteration of all the arterial trunks leading from the common iliac of the affected side,

nature appears to have made an effort, by means of anastomosing branches derived from the healthy arteries of the opposite side, to restore the circulation in the limb in the same way as happens in cases where the common iliac has been tied. That this effort was successful may be inferred from the restoration of warmth and sensibility to the limb; and it is worthy of observation, that in this and similar cases, where a collateral circulation has been just established, the danger to be apprehended appears to arise, as in frost bitten parts too suddenly restored, not from a deficient, but an over active circulation in the affected extremity, which manifested evident symptoms of inflammation, such as *heat*, *pain*, *tenderness*, *œdema*, *vesications*, and *superficial gangrene*. The latter we consider in our case to have been evidently the consequence of inflammation, and it is probable that the gangrene observed in other cases of arteritis arises from the same cause, and not, as Andral seems to think, from a deficient circulation, as he compares it to gangrena senilis, from ossification of the arteries.

If this view of the subject be correct, it evidently points out the impropriety of continuing the application of warmth after we observe that the collateral circulation has commenced, for the same reason that such applications are

improper or even dangerous in the case of frost-bitten parts. Gentle warmth is in such cases at first advantageous; but when the restoration of the circulation has commenced, our efforts should be to moderate, not increase it; a suggestion that may prove useful after the operation for aneurism.

In the advanced stages of this disease the diagnosis is not difficult; there is paralysis, but this has not been preceded by symptoms of cerebral or spinal disease, and the intellects remain undisturbed. To this, the feeble pulsation, or its complete absence in the arteries of the limb, are to be added, and no difficulty will be experienced in recognizing the disease.

In its early stages the diagnosis is more difficult. Here, however, an accurate comparison of the temperature of both limbs, and the force of the arterial pulsations, may perhaps lead to a discovery of the disease soon after its commencement, and thus enable us to arrest the progress of the inflammation. At all events the disease might be checked, if not cured, so as to allow the anastomosing vessels time to take on the supplementary action.*

* For somewhat similar cases we would refer to the following works:—

We are anxious to draw the particular attention of our readers to the very important case of Hamilton, as presenting, in regular succession, the symptoms of the growth, progress, and termination of aneurism of the abdominal aorta.

Although this disease is but little known, yet we are of opinion that it is more frequent than might be supposed, from the very slight information given by authors on the subject. Pain of the back, one of its most common symptoms, so often arises from other circumstances that its supervention seldom excites the suspicion of the disease in question. The character of this pain has not however been sufficiently studied, and we hope to be able to point out circumstances, by which it is distinguished from pain proceeding from other causes, particularly from rheumatism and disease of the kidney, with which it has been confounded in the great majority of cases on record.

The succession of symptoms in our case is so remarkable that we shall recapitulate them.

Rostan.—Sur le ramollisement du cerveau.

Turner.—Edin. Med. Chir. Trans.

Bryant.—Edin. Med. and Surg. Journal.

Storer.—Trans. of a Society for the Improvement of Medical and Surgical Knowledge. Vol. iii.

Parry.—On the pulse.

Andral.—Precis d'Anatomie Pathologique.

1st. The severe lumbar pains ushered in by a fit resembling colic: their occasional exacerbation on exercise, or change of position; and their alleviation when the patient lay on his face and right side.

2nd. The symptoms of disease of the heart, coming on without any apparent cause after a month's continuance of the lumbar pains.

3rd. The appearance of the tumour, pressure on the sac causing nausea, and palpitation of the heart, subsidence of these symptoms on the removal of the pressure.

4th. The double pulsation of the sac evidently caused by its pressure on the heart.

5th. The displacement of the heart.

6th. The occurrence of great curvature of the spine to the side on which the tumour presented.

7th. Severe palpitation after excess. Intolerable colicky pains. Sudden death.

The pain and distress experienced on lying on the left side or back, were felt long before the appearance of the tumour. There can be little doubt that the sac had obtained a considerable size at this period; and the pressure of the abdominal viscera in these positions will account for the symptoms. In the 22nd volume of the Edinburgh Medical and Surgical Journal, there is a case of aneurism of the abdominal aorta,

related by Dr. Proudfoot, in which the same symptom was observed before the appearance of the tumour. After the appearance of the tumour we found that pressure on it, produced either by the hand or the position of the patient, was followed by nausea and great palpitation. The first of these symptoms may be explained by the contiguity of the tumour to the stomach. Hodgson gives nausea as a symptom of aneurism of the aorta, near the cœliac artery.

The palpitation may be explained, by supposing, either that the sac containing much fluid blood was partially emptied by the pressure, and thus a distended state of the aorta followed, or that a partial obliteration of the vessel was produced.

But the interest of the case consists in its having caused displacement of the heart. Aneurism of the abdominal aorta has not as yet been enumerated among the causes of this affection.

In our case there can be no doubt that the displacement was produced by the aneurismal tumour. The absence of any effusion in the left pleura that could account for it; its gradual progression, with the increase of the tumour; and lastly, the double pulsation of the sac; all

point out that the aneurism pressed on the diaphragm and pericardium. The double stroke of the heart was thus mechanically communicated to the sac, giving it an apparent double pulsation; a phenomenon not described as occurring in aneurism. No double pulsation was observed in this case until the displacement of the heart began.

We would here refer the reader to the case of Dowling, where the aneurism in the ascending aorta presented the double pulsation : from its situation there can be no doubt, that it was in immediate contact with the pericardium. In a case of enormous aneurism of the arch of the aorta, which occured to us some time ago, the pulsation was simple. The tumour pointed under the left scapula, and ultimately burst into the left pleura. On dissection we found that no portion of the sac was in contact with the pericardium.

It will not be uninstructive to enumerate briefly the symptoms which have been observed in this dreadful disease.

Cases are on record where it has taken place in a latent manner, but these are rare compared with those that have exhibited striking symptoms. The first and generally most distressing symptom is pain in the back.

The situation of this pain is in the lumbar region, but it may extend upwards or into either hypochondrium, and sometimes shoot down into the thighs or scrotum. It is generally constant, but has been observed to intermit completely for a considerable space of time, as in the highly interesting case related by Dr. Beatty in the present volume. It is frequently extremely acute, particularly during its exacerbations, when it becomes intolerable. In other cases, however, it has been dull and fixed. It resists medical treatment remarkably, but is occasionally alleviated by leeching the loins, and the use of large doses of opium. Constipation aggravates and excites it, and in two cases it became severe during the evacuation of the urine. It is not accompanied by heat of the part, and may continue long without external tumefaction; change of position or pressure on the loins are among its most frequent exciting causes.

The patient is occasionally subject to severe fits resembling the worst form of Painter's colic, and like it, accompanied with spasm of the external abdominal muscles.

In some the stomach is irritated; there is nausea, and in our case pyrosis often took place. The appetite, however, is generally good, and emaciation rarely occurs. Occasionally symp-

toms, indicative of obstruction of the pylorus, have been observed, constipation is not uncommon, and at times forms so prominent a feature, as in combination with pain felt in the region of the colon, to induce the belief of stricture of the large intestine. The urine is sometimes scanty, at others unaltered in quantity or quality.

The heart becomes engaged after the disease has continued for some time; but the symptoms are not constant, being most observable during the paroxysms of the pain. The pulse in the earlier stages of the disease is frequently natural.

Decubitus on the back or left side often produces great distress, and brings on palpitation, which subsides on the patient resuming the posture of ease, which is often on his face, by which the pressure is taken off the diseased vessel.

Coldness and numbness of the lower extremities are not unfrequent; and in two cases paraplegia has occurred.*

* The convulsions and paraplegia which occasionally occur, are induced by caries of the spinal column, producing spinal meningitis, or exposing the cord to pressure.

The tumour may not become externally perceptible during the whole course of the disease. When it does point, it has been almost generally at the left side, at a level with the last dorsal vertebra. As it increases it will press on the stomach, heart, or liver, and displace some of these viscera, so as to push the heart towards the right side, or depress the liver into the abdominal cavity. In Dr. Beatty's case the liver returned to its natural position after the rupture of the aneurismal sac.

The stethoscopic phenomena are those of aneurism in general, but in our case double pulsation occurred from the pressure on the heart: a *bruit de soufflet* is sometimes heard in the epigastric region. There is absence of fever; this is a most important sign, very remarkable in all the cases which we have heard or read of.

We have been induced to give this account of symptoms, as there is as yet no general history of the disease on record. Should it be detected in its early stage, the method of Valsalva should be diligently employed, from our knowledge of its good effects in aneurisms of the thoracic aorta.

It must however be remarked, that in Dr.

Proudfoot's case, and particularly in that recorded by Dr. Beatty, an opposite plan appeared to give most relief. Can this be explained by supposing, that in consequence of the use of a nutritious diet, a more coagulable blood was formed, and that thus the extension of the disease was for the time suspended.*—See a Paper by M. Piorry, *Journal Hebdomad.* No. 82.

The case of aneurism of the ascending aorta, (Dowling,) is interesting in several points of view.

1st. The disease occurring immediately after a violent mental emotion.

2nd. Its long continuance without increase of the size of the tumour.

3rd. The absence of symptoms of disease of the heart.

4th. The double pulsation of the tumour.

This last circumstance is very important, as Lænnec and Bertin have given the simple or

* See Scarpa on Aneurism.
Hodgson.—Diseases of Arteries and Veins.
Pelletan.—Clinique Chirurgicale.
Morgagni.—De sedibus et causis morborum, epistola 40.
Edinburgh Medical and Surgical Journal. Volume xxii.
Bertin.—Traité des Maladies du Cœur, pp. 114, 115.

single pulsation as a diagnostic of all aneurisms of the aorta, including those of the ascending portion. Thus, among other observations to the same effect, we find the first mentioned author to state, that although in cases where the disease is combined with disease of the heart, auscultation may discover in the tumour two sounds, corresponding to those of the heart, and propagated from it; yet with respect to the pulsation of the external tumour, he states it to be always simple.

In cases of abdominal aneurism, he describes the pulsations as simple; and even where the tumour occurs as high up as the origin of the cœliac artery, he says that the auricular contractions are not at all perceptible.

Cruvelhier, in his Anatomie Pathologique, Livraison 3, describes an aneurismal tumour of the thoracic aorta, which presented a double pulsation isochronous to that of the heart, but does not seem to have been aware of the importance of the fact. In this case, like ours, the aneurismal sac was evidently in contact with the pericardium, having caused displacement of the heart.

In the cases of Hamilton and of Dowling, the double pulsations occurred at very different

portions of the vessel, but evidently arose from the same cause, the pressure of the aneurismal sac upon the heart, by which the double impulse was communicated. This circumstance then adds to the difficulty of diagnosis in the early stages of the aortic aneurism; for if the tumour be in contact with the heart, a double pulsation will be communicated, very difficult, if not impossible to be distinguished from that of the heart itself.

We had lately in hospital a case of aneurism of the thoracic aorta, presenting between the third and fourth rib, on the left side; the pulsations were evidently double, both as examined by the touch and by auscultation. Dissection discovered a large aneurismal dilatation of the ascending aorta in contact with, and having burst into the pericardium.

Some other cases of arterial disease have been observed by us during the session, but as they did not illustrate any novel circumstance of interest in diagnosis or pathology, we refrain from inserting them.

We possess a preparation illustrative of a rare termination of thoracic aneurism, and generally diseased aorta. An aneurismal tumour occupied the arch of the aorta, but the cause of

sudden death was a perforation of the aorta just above the valves, through which a fatal hœmorrhage into the pericardium took place.

PAINFUL SWELLING OF THE LEFT LOWER EXTREMITY. INFLAMMATION OF THE SAPHENA VEIN. SYMPTOMS OF INTERMITTENT FEVER.

During the month of February, 1829, when several cases of ague were in the house, a man named Andrews was admitted, complaining of rigors, followed by a hot and sweating stage, which came on every second day; these he stated had been preceded by continued fever.

Considering the case as an example of tertian ague, we ordered the exhibition of sulphate of quinine in six grain doses daily. In a few days the type of the fever was changed to that of quotidian, but still, during the intervals, the patient was nearly free from fever. We now made a more accurate examination, and found that the left leg and thigh were extremely painful and swollen, a circumstance which the patient had concealed. Any attempt to extend the limb produced intolerable pain, chiefly referable to the ham and calf of the leg. The limb was extremely tender on pressure, particularly along the course of the saphena vein, which in its whole extent could be felt like a hard cord. No

change could be observed in the temperature of the limb.

The opposite leg appeared healthy. The saphena was indurated, but not painful on pressure.

We now omitted the quinine, applied leeches freely to the affected limb, and at the same time exhibited calomel and opium. This treatment proved successful, and the patient was discharged in three weeks with the perfect use of the limb. The saphena having been restored to its original state, that of the opposite side, however, remaining unchanged.

PAINFUL SWELLINGS OF THE LOWER EXTREMITIES.

Eliza O'Donnel, aged 21, was admitted on the third of June, 1829, with symptoms of gastric fever, and severe pain in the right side under the margin of the ribs. Thirty leeches were applied to the painful part, and aperient medicines exhibited with relief.

On the sixth, convalescence appeared to have commenced, the menses flowed scantily, and altogether, though great weakness existed, her situation was satisfactory. On the 7th, however, without any obvious cause, we found that she had been kept awake the whole night by a

violent pain in the calf of the left leg, which was swollen, extremely tender, hotter than natural, and tense, but was not at all red, neither did it pit on pressure. The tenderness, every where great, was excessive along the course of the saphena vein, which felt cordy throughout its whole extent. Some tenderness was complained of in the pubic region, with scalding on micturition ; pulse 108, hard ; tongue brown and dry ; great thirst.

Twenty leeches were applied along the course of the saphena ; three grains of opium and ten of calomel, divided into six pills, were given in the twenty-four hours, and a hip bath at night. Next day she was greatly relieved, and in a few days her mouth was evidently affected by the mercury, and the pain subsided in the limb, which had decreased considerably in size, was less tense, and pitted on pressure.

In this case a decided tendency to a recurrence of the affection was observed, and the pain, tenderness, and swelling returned several times, but in a less severe form, and generally yielded to the application of leeches and stupes. The pain in one attack was greatest in the calf of the leg, in another at the instep, and in a third at the middle of the thigh. The disease in the left leg, after continuing with intermis-

sions for three weeks, subsided, leaving, however, the limb considerably swollen, and the patient in a state of emaciation and exhaustion.

On the 28th of June, a nearly similar train of local symptoms commenced in the right leg, attended with so much constitutional irritation and debility, that we were apprehensive of the result.

The violence of the symptoms, however, subsided after the application of twenty leeches, and the use of remedies hereafter to be mentioned, so that, although her convalescence was tedious, the local symptoms had disappeared before the middle of July.

It is worthy of remark, that when leeches were applied during the swollen state of the limb, a very large quantity of serous fluid flowed from their bites before any red blood made its appearance. During this state of the limb, the swelling too was by no means uniform, varying from day to day as to the situation it chiefly occupied, and not unfrequently to the touch *simulating most perfectly*, the fluctuation caused by an abscess immediately under the integuments. The suffering from pain and want of sleep during the whole course of the disease was extreme, and so soon reduced her strength, that

the exhibition of stimulating and tonic remedies was found necessary eight days after the commencement of the complaint, and were continued, combined with narcotics and the use of stupes, until she had so far recovered, both from the constitutional and local disease, that we were able to pass to the use of mild diuretics and the application of bandages.

In this case the leg first attacked had not perfectly recovered when the other assumed the diseased action. In the right leg the corded and knotty state of the saphena vein, and the tenderness along its course, so remarkable in the left, did not exist.

On the subject of the painful swelling of the limb, as observed in the case of Andrews, we shall remark, in the first place, that it is a striking example of the danger that may arise from neglect of accurate examination in any case however simple in appearance. If we had not ultimately discovered the disease in this instance, the worst consequences might have resulted. We shall mention another case briefly, which illustrates the importance of general examination.

In a female patient much debilitated by fever, convalescence had but commenced when

she complained of want of sleep from severe pain in the calf of the right leg. At this time we were not familiar with the disease. On examination of the limb, the skin was of the natural colour, and it did not appear increased in size or swollen in the least. Narcotics were exhibited, but without benefit, and on the following day, the pain being very severe, and occupying a small spot on the leg, a moxa was applied. Next day, on taking down the bed clothes, the left leg was accidently uncovered, when we were at once struck with the great difference of size of the two extremities. The right, which we had supposed of natural size, was nearly twice as large as the left, which was emaciated from the long continuance of the fever. It was plain, that in consequence of not comparing both limbs, we had mistaken the swelling of the right leg for its natural state, lost much time in the treatment, and employed a painful and useless remedy. The patient ultimately recovered, but the moxa produced a very troublesome ulcer.

These cases are good examples of the practical value of diagnosis: so long as we had an erroneous idea of their nature the remedies employed were injurious, but as soon as the real nature of the disease was discovered, the measures adopted were followed by complete success.

The intermittent fever in the case of Andrews, may be compared to that depending on urinary disease. There is a point of irritation in the system which appears to produce the rigors; and to cure the fever we must remove its exciting cause. In this case, as in that of urinary intermittent, the exhibition of bark aggravated the symptoms, and we have had several opportunities of observing that this symptomatic intermittent, although it be reciprocally cause and effect, is exasperated by the above treatment. We have seen it in a lady who had lately been confined, in whom there was a tendency to the formation of mammary abscess. Quinine was exhibited in large doses for several days, and great aggravation of the symptoms of intermittent followed.* In a case of phlegmasia dolens lately treated in the hospital, the woman had daily rigors, followed by a hot and sweating stage. In both these cases the treatment which proved successful was local bleeding and the use of draughts repeated daily, consisting of the

* In another patient we observed well marked tertian ague surpervene *during the administration of large doses of sulphate of quinine.* In a case of arthritic rheumatism in a person previously healthy, an imprudent attempt at curing the intermittent by still further increasing the dose of sulphate of quinine, induced a fatal pneumonia: in this case more sulphate of quinine had been exhibited antecedent to the appearance of the tertian fever than would have been sufficient to cure three ordinary agues.

ammoniated tincture of valerian, opium, and sulphuric ether. Indeed in the last mentioned case, whenever this medicine was omitted the rigors returned; this happened three or four times. The patient ultimately recovered.

An accurate observation of numerous cases both of phlegmasia dolens occuring after delivery, and of painful swelling of the extremities appearing during or after fever,* has satisfied us of the pathological identity of the two diseases. In both œdema occurs, unattended by redness, but accompanied by increase of heat, with great tenderness and pain, and followed for a considerable time by impaired motion of the limb.

In both diseases the swelling and other symptoms are frequently not confined to any one portion of the extremity, but extend uniformly over the leg and thigh. In both diseases, however, we have also often observed, that the pain, heat, and swelling, occupied particular parts of the limb, while the rest was comparatively free from disease. Thus in some cases a portion of the thigh was intensely engaged, while the leg and foot remained free, and after some days the diseased action seemed to change

* Dr. Tweedie, Edinburgh Medical and Surgical Journal. No. 97.

its place, and successively attacked the other portions of the limb, without, however, any precise order in the mode of succession. In consequence of this, our treatment has been directed to different portions of the limb, according to the situation of the disease; and we constantly found that the degree of swelling in the part attacked was proportioned to the accompanying heat, pain, and tenderness. In some cases we have observed this affection to be attended by a cordy and painful state of the saphena vein, proving that it participated in the disease; but as this state of the vein, where it did occur, was in some cases subsequent to the disease of the other parts of the limb; and as in the majority of our cases of phlegmasia dolens, and in the painful swelling of the extremity after fever in the male and female subject, no such affection of the saphena occured, we think that the latter cannot in justice be considered as the cause of the disease. The occasional occurrence of the swelling in the inferior portion of the limb in the first instance, and its erratic nature, militate against the idea that the disease proceeds from an affection of the large venous trunks; and in two instances we have seen the disease desert its original seat, and concentrate itself in the knee joint, producing obstinate inflammation of the part, which in one case, that of a male after fever, terminated in anchylosis, and in the other, that

of a female who laboured under true phlegmasia dolens after delivery, the same unfortunate result was with difficulty arrested.

As the latter occurrence, and many obvious considerations, leave little doubt concerning the inflammatory nature of the disease; it remains to be considered what are the parts engaged. To us it would appear that the subcutaneous cellular tissue is primarily affected, sometimes generally, at others partially. It is not unusual to meet with cases either of general or local anasarca evidently of an inflammatory origin, accompanied by pain and heat, but unattended by redness. The external and vascular layer of the corium remaining uninflamed, will account for the absence of redness in this disease, as well as in the inflammatory anasarca.

The cellular tissue seems to follow the same law as serous membranes. Moderately inflamed it effuses an unusual quantity of its natural secretion, *serum*. When the irritation is more intense, the effusion is also altered; it contains more animal matter, approaching in its qualities to coagulable lymph, and sometimes it is of a puriform nature. It is to be remarked, that suppuration has occasionally been observed in phlegmasia dolens when very intense, but usually the effusion appears to be the result of an intermediate

degree of inflammation between that which produces puriform and merely serous effusion. The swelling is consequently more apt to produce by means of the coagulable matter contained in the effusion, considerable hardness arising from the consolidation of the cellular tissue. A state of parts not observed in the beginning or termination of the disease, when the inflammation is more moderate, which we have frequently pointed out to our pupils both in phlegmasia dolens and the painful swelling of the extremity after fever. Did space permit, further arguments might be adduced from considering the pathology of Barbadoes leg, and the disease termed berri berri in Ceylon.*

Concerning the treatment, the local antiphlogistic plan persevered in with assiduity, the use of stupes, and after the disease has continued for some time, the liberal use of narcotics, have appeared to be the best means of subduing the disease, when in its acute form: when more than usually obstinate, these means must be accompanied by bandaging, tonics, and diuretics; and when the knee is attacked, frequent leeching, blistering, and the use of the inclined plane.

* Dub. Hos. Reports, vol. iii. *Ridley on Berri Berri.*

The utility of salivation appears to us questionable. In one case we obtained no advantage from the liberal exhibition of iodine. We have been informed by an experienced practitioner, that in several cases of phlegmasia dolens, he has observed marked advantage from the repeated application of blisters to the affected limb ; a fact evidently not inconsistent with our view of the pathology of the disease.

Since the above pages were written we have met with a remarkable case, in which this peculiar swelling of the lower extremity coincided with an inflammatory state of the vein.

A young man of a strong habit was employed for two successive days in working in a ditch, and was consequently obliged to stand in water above his knees during that time. On the following day he became affected with lassitude, vertigo, and general weakness, and complained of severe pain in the right thigh. These symptoms continued for seven days, when he was admitted into the Meath Hospital.

On admission his countenance was anxious and depressed ; the tongue furred ; thirst ; headach ; urine scanty, turbid, and high coloured ; pulse 96 ; skin mottled with petechiæ. In addition to these general symptoms his res-

piration was observed to be laboured and unequal, with some cough; face very livid. But his chief complaint was a severe pain in the upper and anterior portion of the right thigh, which was greatly aggravated by motion or pressure. He had also severe pain in the left hypochondrium, increased by inspiration or cough.

At this time no swelling whatever of the limb could be detected; but in the course of two days the upper portion of the thigh became evidently swollen, the part being extremely tender, elastic, but not at all red. The pain of the side continued, and extensive bronchial and pneumonic inflammation was detected. General bleeding, and very free leeching to the limb, was employed. The blood was not inflammatory, and no relief was experienced by the patient. The swelling of the thigh increased; calomel and opium were freely exhibited, but without any effect. The typhoid symptoms increased, and the patient died on the fourth day after his admission.

On dissection we found the right lower extremity swollen, and tense in its superior portion, while the leg and foot were slightly anasarcous. The sac of the pericardium contained some sero-purulent fluid, and that portion covering the auricles and great vessels was vas-

cular, and in many places covered with coagulable lymph. Both lungs were in a state of extreme sanguineous congestion, with commencing solidity in their postero-inferior portion, and general inflammation of the pleura, as shewn by a reticular exudation of coagulable lymph, which occurred in greatest quantity in the most inferior portions. The bronchial mucous membrane was universally red, and the tubes filled with frothy mucus. No disease could be detected in the lining membrane of the heart. The right ventricle contained a fibrinous coagulum of the usual appearance. The gastro-intestinal system appeared remarkably healthy, except in the great extremity of the stomach, where the mucous membrane presented a dotted red colour. The spleen enlarged, flabby and pale, was found in a state of purulent infiltration, bearing some resemblance to the lung in the third stage of acute pneumonia.

The vena cava contained a few portions of a substance of a granular appearance, friable and of a yellowish colour. These did not adhere to the vessel, which otherwise appeared healthy. In the external iliac vein, however, we found, just above Poupart's ligament, a large concretion of a similar nature, nearly plugging up the vessel, and extending into some of the minute collateral branches. The lining membrane was

red, and in one point adhered to the coagulum. No puriform matter could be detected. The femoral and popliteal veins were healthy, as also the arteries. The cellular tissue of the limb was pale and œdematous.

It cannot be denied that this case is strongly corroborative of the opinion before entertained, and lately insisted on by Tommasini,* that the phlegmasia alba dolens is in reality owing to phlebitis.

Here we find a young man previously in the enjoyment of good health, after a long continued exposure of the lower extremities to cold, becoming affected with symptoms of fever, and a violent pain in the upper part of the thigh. These are succeeded by others indicative of obstruction in the circulation of the limb, and of visceral inflammation, and in a few days the patient dies, with general pleuro-pneumony, pericarditis, and splenitis; and in addition to these the vein is found in an unequivocal state of inflammation and obstruction. It would, however, be unphilosophical to form certain conclusions as to the disease in question from a single case. We have put our experience of the disease now on record, and leave to our readers to form their own opinion.

* See Journal Hebdomad. No. 81.

DISEASE OF THE LYMPHATICS.

Anne Norris, aged 19, of a very healthy habit, fat and well made, was admitted on the 12th of December, 1828, labouring under feverish symptoms of a few days' duration, which had commenced with a rigor.

On examination a painful swelling was discovered in the left iliac fossa. It felt hard to the touch, and was supposed to be occasioned by an accumulation of fecal matter within the the colon. Two large enemata were injected by means of a Read's syringe, and twenty leeches applied to the tumour. This considerably diminished the uneasy sensations felt in the tumour, but did not effect the least diminution of its size. On the seventh day from the commencement of her illness, a sweat, apparently critical, supervened, and at our next visit she was quite free from fever. Being very anxious to return home, she left the hospital two days after.

At home she resumed her usual laborious occupations, during which she did not complain of pain, but was heard frequently to say she felt chilly.

On the 5th of January she had again a decided rigor, and felt sick, and on the 7th was re-admitted, complaining of pains in several parts of the trunk and extremities, but most acute in the small of the back, and accompanied by heat of skin, thirst, &c. The tumour was found to be painful, and larger than formerly, but she said it give her little or no uneasiness while she had been at home. She was bled to ten ounces, and took some aperient medicine. She expressed herself much relieved the next day, and appeared to be progressively improving until the ninth, when she died suddenly.

POST MORTEM EXAMINATION.

Not the least emaciation.

Abdomen.—The sigmoid flexure of the colon was found to be completely displaced by the tumour, which was caused by a large abscess in the psoas muscle, extending upwards to the last dorsal vertebra, and downwards to *below* Poupart's ligament. It had caused, however, no evident tumour in the thigh. The abscess contained a large quantity of healthy pus; when emptied of its contents, its parietes seemed to be formed by the cellular envelope of the muscle, much stronger however and thicker than natural, apparently from the accession of con-

densed cellular membrane. The internal surface of the sac was quite smooth, as if it had been lined with serous membrane, and exhibited towards its infero-posterior portion five or six orifices of the diameter of peas, funnel shaped, and having their surfaces perfectly continuous with that of the sac. They terminated in organized tubes, which appeared to be lymphatics, for they led to a mass of diseased glands that lay on the brim of the pelvis. Having carefully separated the sac, the lymphatic glands, and thoracic duct, we found the vessels between the glands and the abscess filled with pus precisely similar to that of the abscess, while the glands were distended with matter evidently of a similar origin, but changed in its physical properties. In some it was still fluid, but much thicker than in the abscess; in most it was converted into a soft cheesy mass. From these glands ascended a chain of lymphatics communicating with the thoracic duct, and containing solid matter resembling that of tubercles. The thoracic duct was distended to the size of the middle finger, and felt hard and nodulated. It was found to contain a similar matter, but much harder in consistence, and mixed with a large proportion of a calcareous substance, such as occurs in diseased bronchial glands, &c. The uterus was filled with a mass of the caseous matter; the other abdominal and thoracic viscera healthy. Head not examined.

The above very remarkable case presents many points worthy of attention.

The date of the psoas abscess is uncertain, but it had probably commenced a good while before her admission, as its size was then very considerable. Its true nature, although it was repeatedly examined by experienced surgeons, was not detected until her re-admission. As not unfrequently happens, this formation of purulent matter, although so extensive, had produced no emaciation, no hectic, and but little constitutional suffering. Neither the sac of the abscess nor the neighbouring parts presented marks of previous inflammation. It is not very rare, as happened in two cases related by *Otto*,* to find cavities varying in size in muscular or other tissues, where the proper tissue of the organ has been replaced by pus, independent of any uneasy feelings in the part, or any constitutional disturbance during life, and unaccompanied by marks of preceding inflammation in the parts enclosing the pus.

Very lately we opened the body of a man who died in six days after the healing of an old and extensive fistulous ulcer of the thigh. His spleen *shrivelled* and *small*, and presenting no

* Neue Seltene Beobachtungen, p. 41.

traces of inflammatory action, nevertheless contained many small cavities filled with pus.

The next circumstance in our case to be noticed, is the nature of the vessels which opened into the sac of the abscess. The only way we can account for the large size of their orifices, and the direct manner in which their patulous mouths opened into the cavity, is by supposing that soon after the commencement of the suppuration, the lymphatics of the part became turgid with pus; and that as the destructive process went on the *smaller* lymphatic branches, together with the veins and arteries belonging to the psoas muscle, were destroyed, while the larger lymphatics remained, cut across, as it were, by the morbid action. Their termination in the lymphatic glands left no doubt as to their real nature.

Another circumstance pathologically important, is the relation the matter in the abscess bore to that contained in the glands and thoracic duct.

We here see pus converted into matter of a caseous consistence; more of its fluid particles are absorbed, its solid particles undergo new arrangements, and it assumes all the physical characters of solid tubercular matter, and,

like the latter, passes finally into that state in which its calcareous matter predominates; its other ingredients having been nearly altogether absorbed.

Andral has cited cases somewhat similar, but none so striking as that we have detailed. He has discussed the question, whether tubercular matter is not originally deposited in the fluid state. Concerning this question we can at present merely observe that it is in *the first place* extremely difficult to conceive the direct deposition of solid particles from the vascular system; and in the *second place*, as far as we can observe, the mode of proceeding adopted in the reparation of injuries of the solids, the particles are never deposited in the first instance in the solid form. All the solid particles meant for the growth or reparation of the various textures are held in solution in the blood, and the fluid current carried every where through the system, is separated by the vessels into fluids different in their nature, and destined to bear the nutritious particles to the various tissues. If a membrane is formed of coagulated albumen, the latter is deposited not in the fluid but the solid state, as is evident from the formation of serous pseudo-membranes. If a breach in muscular substance is to be filled, we see the *fluid coagu-*

lable lymph the vehicle of the necessary fibrin. The animal basis and the earthy salts composing bone, are carried in a fluid state to effect its growth or reparation. Andral, however, maintains the doctrine of the direct deposition of solids from the blood, but he has not brought forward a single instance of the kind in the animal economy, except that of the epidermis ; but no one who has considered with attention the process of skinning over an ulcer will be inclined to agree with this justly celebrated pathologist in this opinion.

Our case shews, in a very strong manner, the extent of the changes which matter, not connected by means of vessels with the system, may undergo, and proves, that although no vessel can be traced into the tubercular matter, it is not the less subject to change in its composition.

This important pathological fact should never be forgotten in considering the changes observed in pulmonary tubercles.

DISEASES OF THE RESPIRATORY ORGANS.

The most frequent diseases of the respiratory organs, which we have met with during the last year, were acute inflammations affecting either the pulmonary tissue, or the bronchial

mucous membrane alone. Simple pleuritis, as far as our observations have gone, appears to be a very rare disease in Dublin. On this disease, however, we shall presently offer some observations.

The plan of treatment which we have found of the greatest efficacy in combating simple pneumonia, is the use of the lancet and the exhibition of the tartar emetic in full doses. As this latter forms a mode of treatment not yet extensively adopted in these countries, we shall put our experience of it on record.*

The cases in which this treatment is most applicable, are those where the disease is in the early stages, where it occurs in strong constitutions, and lastly, where there is absence of gastric symptoms. This is a point of great importance, and we shall refer to it presently.

It is during the existence of the first stage of the pneumonia, while the crepitating rale is heard most distinctly, and before the affected portion of the lung sounds dull on percussion,

* The following is the common formula we have adopted

℞. Tart. antimon. gr. vi. Aq. cinnamomi. ℥iv. Syrupi, mucilaginis, ā ā ℥i. Tinctur. opii. acet. gt. xii. Of his half an ounce is given every hour, or oftener if necessary.

that we find the remedy to answer best: six grains are generally administered the first day, and the dose is increased by two or three grains daily, until fifteen grains are exhibited in the twenty-four hours. Beyond this dose we have never found it necessary to go; but we have been able to persist in the exhibition of the remedy at this rate for many days, and with the best effects.

The cases in which we have found it necessary to continue this treatment longest, are those in which an acute pneumonia has supervened on a chronic catarrh. In one case of this kind in which the pneumonia was double, one hundred and eighty grains of the tartar emetic were exhibited at the rate of twelve grains daily. In this case the tolerance of the remedy was completely established after the second or third day. Indeed, towards the termination of the disease, the patient's appetite was excellent, although he was taking the remedy at the rate mentioned. This we have often seen in other cases, a fact already observed by Lænnec.

We have very seldom observed abdominal irritation to follow the exhibition of the remedy, even where large quantities have been taken. In a few cases after the subsidence of the pulmonary disease, colicky pains occured, but these

almost constantly yielded to stuping, mild laxatives, and opiates. In one case, however, they were so severe as to require blood-letting: the blood was cupped and buffed, and the patient recovered perfectly. The following is an abstract of the case.

HEPATIZATION OF THE LUNG. ABSENCE OF MANY OF THE SYMPTOMS OF PNEUMONIA. ABDOMINAL INFLAMMATION SUPERVENING DURING THE USE OF TARTAR EMETIC IN LARGE DOSES. CURE.

Steward Bowles, aged 17, of a strong habit. This patient was admitted on the 17th of March, 1829. His illness commenced three weeks previously with chilliness, followed by anorexia, pains in the shoulders, and a stitch in the left breast. He had a trifling cough in the morning and evening, followed by yellow mucous expectoration.

On admission the pulse was full; he had a slight cough, but no lividity of the face, and scarcely any acceleration of breathing: indeed from his external symptoms it was impossible to conclude that he had any serious affection of the lung.

On examination with the stethoscope, however, we detected a complete hepatization of the

inferior lobe of the left lung. In the remaining portions of the chest, the respiration was puerile. He was bled generally and locally, and put on the use of six grains of the tartar emetic daily. The blood was not inflammatory, and next morning all external symptoms of disease had wholly disappeared. He had no pain; respirations sixteen in the minute; the cough had ceased, and the pulse had become small and regular. The patient expressed himself perfectly well: there was, however, no change in the stethoscopic phenomena.

The tartar emetic was continued for four days in the doses of eight grains daily, which produced constant nausea. It was then omitted on account of the supervention of violent vomiting, diarrhœa, and pain in the abdomen. These symptoms subsided under the use of a mixture of castor oil, muculage, and opium; the side was blistered. The sound, on percussion, became clearer, and there was some return of the natural respiratory murmur, anteriorly and laterally, but the bronchial respiration posteriorly became much louder, and continued so for some time before its ultimate subsidence. No crepitus of resolution was observed. In two days the abdominal symptoms returned with violence. Bleeding was had recourse to with relief; the blood was now inflammatory. Resolution of the he-

patization went on rapidly, and the patient speedily recovered. But in cases where from the commencement, symptoms of gastro-enteritis and pneumonia coexist, we withhold the tartar emetic, as we have found that its exhibition under these circumstances is always improper. In the few cases which have resisted the remedy, we have found disease of the alimentary canal, particularly ulcerations of the small intestines. Tolerance in these cases is with difficulty established, and the remedy does not appear to have nearly the same influence on the disease. We cannot then subscribe to the opinion of Lænnec, who believed, that the existence of gastro-enteritis is not a contra-indication to the employment of the remedy. In such cases we rely upon general and local bleeding ; and frequently we have, by means of a free application of leeches to the belly, removed the gastric symptoms, and then commenced the use of the tartar emetic with safety.

With respect to blood-letting in pneumonia, we rely more on it as a means of combating the inflammation than Lænnec appears to have done. Except in cases of pneumonia combined with hypertrophy of the heart, he considered bleeding more as a mode of preparing the patient for the exhibition of tartar emetic, than as calculated directly to remove the disease.

We consider, on the contrary, general and local bleeding to be of primary importance, while the tartar emetic is a very useful adjuvant. Thus, on any sudden exacerbation of the disease, we do not trust to increasing the dose of the remedy, but have at once recourse to general or local bleeding, as the case may be; and we may here remark, that in the treatment of acute bronchitis and pneumonia, when occurring in the adult, local bleeding has been too little practised in this country.

In some cases we find that the first dose of the remedy makes the patient vomit freely, but after a few more doses the medicine is borne well. But in the greatest number of cases a state of slight nausea, without vomiting, is kept up, and continues for several days, and indeed as long as the remedy is administered.

Sometimes we have found both vomiting and purging to follow at first, but to subside after twenty-four hours. Diaphoresis is a rare effect, and we have often witnessed cases where the patient was taking from ten to twelve grains of the medicine daily, without vomiting, purging, or sweating; so that no effect could be observed, except a gradual reduction of the symptoms, and stethoscopic phenomena.

We generally find, in cases of simple pneumonia, when the disease is confined to the lower portion of one lung, that when we commence with the exhibition of six grains in the day, and increase this at the rate of a grain daily, we are able either to omit the remedy, or begin to diminish it in the course of four or five days. We seldom omit it suddenly, as more than once, a severe relapse has followed this practice.

There are two remedies which appear to have a powerful effect in removing pneumonic inflammation; these are tartar emetic and the combination of mercury with opium. It appears a desideratum to determine in what cases each of these remedies best applies. Our experience leads us to conclude, that in the uncomplicated pneumonia, occurring in robust habits, and accompanied by inflammatory fever, the first of these remedies is to be preferred. But in cases where a complication with abdominal disease decidedly exists; where the fever is low, and the powers of life greatly sunk, we have found the active administration of calomel and opium, so as to affect the gums decidedly, followed by the use of the decoction of polygala and other stimulants, to have succeeded in the most remarkable manner. The question, however, as to the relative merits of these remedies is yet to be decided.

Where circumscribed hepatizations of the lung have taken place previously to the patient's being admitted into hospital, we have found the mercurial plan assisted by local bleeding, and the use of blisters, to be the means best calculated to remove the disease. Under this treatment we have seen extensive solidifications of the lung resolve with great rapidity. Indeed it appears that after the disease has passed the first stage, the tartar emetic loses much of its efficacy.

Several cases of pneumonia in the third stage have occured to us; with one exception they were fatal. In this case the patient, a girl, aged thirteen, was admitted, labouring under symptoms of pneumonia of six days' standing. On examination with the stethoscope, strong bronchial respiration was detected over the left side, from the infra-spinous region downwards; the part sounded completely dull; no dilatation of the side existed. She was treated, by the usual means, with great relief of the external symptoms; but after a short period the lower portion of the lung presented the phenomena of a cavity, at this time the expectoration became purulent. In about a week the signs of the cavity which were extremely plain, disappeared, and perfect recovery followed in the course of a fortnight; the affected portion of the lung having become clear on percussion, and the respiratory murmur perfectly natural.

In many cases of pneumonia, with great dyspnœa and lividity of countenance, we have observed great improvement in the general symptoms to follow venesection and the exhibition of tartar emetic; but on the following day no improvement in the portion of lung, principally engaged, was dicovered by the stethoscope. These were all cases of partial pneumonia, with general bronchitis, and the improvement was owing to the beneficial influence of the remedies on the latter disease, while the patient, although greatly relieved, was still in considerable danger, a fact of which it is necessary to be aware in the treatment of pulmonary inflammation.

It is stated by Lænnec, that in all cases of pneumonia the bronchial mucous membrane is necessarily engaged in the affected portion of the lung. We believe that this is generally true, but we have met with one remarkable exception to this law. A woman, aged thirty, was admitted labouring under the usual symptoms of acute pneumonia. The stethoscope indicated commencing hepatization of the inferior portion of the right lung: notwithstanding very active treatment, she died on the seventh day of her illness. On dissection we found the lower lobe of the left lung nearly in a state of red hepatization, with effusion of lymph on the corres-

ponding portion of the pleura. The bronchial mucous membrane in the whole of the left lung, and in the superior portion of the right, was inflamed, and the tubes filled with mucus, these parts of the lung being crepitating and free from engorgement, while in the hepatized portion the mucous membrane was perfectly white, and presented no mark whatever of disease.

Andral, in his late *Precis d'Anatomie Pathologique*, makes the following statement : "*Si l'on examine l'hyperémie des conduits aérifères dans ses rapports avec les maladies du parenchyme pulmonaire, on trouve qu'elle n'est lieé nécessairement à aucune de ces maladies. Ainsi il n'est pas tres rare de trouver, dans la pneumonie aiguë la trachée-artere et les bronches d'une blancheur parfaite.*"

In our case, however, it is highly interesting, that the only portion of the bronchial mucous membrane which escaped inflammation, was that around which the lung itself was engaged.

The case of Bowles illustrates two interesting stethoscopic points. It will be observed that the phenomena of hepatization disappeared without the occurrence of the crepitus of resolution. This we have now seen so often, that we do not consider this phenomenon as neces-

sarily accompanying the resolution of an hepatized lung. In cases where the solidification of the lung has been very recent, we have commonly observed it; but in those where the disease has attained any degree of chronicity, we are disposed to regard it as a rare phenomenon. Under these circumstances the murmur of respiration and clearness of sound on percussion gradually increase, without the occurrence of any rale.

The second point is connected with the occurrence of the bronchial respiration. It has been taught that the increase of this sign points out an extension of solidification. This is generally true, but the case of Bowles presents an exception. Here, as the anterior portion of the lung became more permeable, the bronchial respiration at the root of the lung increased for a time in intensity, and afterwards subsided. We would explain this apparently contradictory circumstance, by supposing that in consequence of the increased permeability of the anterior portions, the power of expansion of the lung was much increased, and consequently more air passed through the lower tubes in contact with the part yet solid. Hence the increase of bronchial respiration, which in this case was a sign not of extension but of diminution of disease.

A somewhat similar remark may be made

with respect to the sonorous rale, as an indication of the existence of bronchial inflammation. In several cases of the worst catarrhal fevers, when the patient was in a semi-comatose state, the skin covered with petechiæ, the face livid, but the respiration not much hurried: nothing is often observable by the stethoscope when applied during ordinary respiration, except that the respiratory murmur is very feeble, or mixed with a very slight sonorous or mucous rale. On the patient, however, making a deep inspiration, an intensely loud sonorous rale becomes immediately audible, appearing to indicate that the smaller ramifications of the bronchial tubes were, in consequence of the inflammatory turgescence of their mucous lining, impermeable to air during ordinary respiration. Now we often observed, that when these patients began to convalesce, the sonorous rale was loudly audible during ordinary respiration, a circumstance obviously owing to a decrease in the intensity of the inflammation.

A great number of cases of catarrhal fever, with and without typhoid symptoms, were admitted during this year. The cases which did best, were those where the fever was inflammatory, and in which blood-letting and tartar emetic were exhibited from the outset. Several of these patients recovered rapidly, without the disease passing into the second or more

chronic stage in which the mucous rale becomes the pathognomonic sign. In others, after the use of these means for some time, they appeared to lose all efficacy; the expectoration became copious, and an extensive mucous rale was generally audible. At this period the change from the antiphlogistic to the stimulating plan of treatment was often followed by a rapid cure. The decoction of seneka, with the addition of carbonate of ammonia, camphorated tincture of opium, and some preparation of squill, was the remedy most commonly used, in addition to which the regimen of the patient was improved. But the mere fact of the disease having passed into the second stage, does not appear in every case to warrant the propriety of the stimulating plan from the commencement of our treatment. We have observed some cases where bad effects followed this practice, and have come to a conclusion, which appears to us to be of practical importance, that to render the stimulating plan of treatment decidedly successful, it will be frequently advisable to precede it by the antiphlogistic, to prepare the patient for the exhibibition of stimulants. The disease then yields rapidly, and this is another example of the pathological analogy of the diseases of mucous membranes and of the skin.*

* See Dr. Duffin's Paper on Cutaneous Diseases. Edin. Med. and Surg. Journal.

The chloride of lime has been administered by us in a case of pectoral disease, with great fœtor of breath and expectoration, with remarkable benefit. The patient, in a fit of intoxication, lay naked on a stone floor for the whole of a night, and next morning had a severe pain in the side on which he lay, followed by other symptoms of an inflammatory affection of the lungs. In the course of two days his breath and expectoration became fœtid, and after some time he was admitted into our wards in a state of extreme debility, with hectic fever, cough, with fœtid expectoration, fœtor of the breath, and hippocratic countenance.

It was determined to try the effect of the chloride of lime; a pill containing three grains of the salt and one of opium was administered three times a day, and in the course of three days the quantity was increased to twelve grains daily; a small quantity of wine was also allowed.

The most rapid and marked amendment followed this treatment; in a few days the fœtor of breath and expectoration had disappeared; no inconvenience whatever was experienced from the remedy: we also directed the covering of the bed to be sprinkled with a solution of the salt: the remedy was then omitted; in two

days the fœtor returned, and fever began to appear; but these symptoms again subsided with rapidity, on our resuming the employment of the remedy. The patient was ultimately discharged, greatly improved in strength and flesh; he, however, sometime afterwards relapsed, and died in the country.*

Pleuritis.—We have already remarked that simple pleuritis appeared to be a rare disease in Dublin. In the Meath Hospital no example of idiopathic pleuritis occurred to us during the last year; but at Sir P. Dun's Hospital two cases were met with, which we shall briefly detail, as they present some highly interesting circumstances connected with stethoscopic observation.

In the month of February, 1829, two cases admitted into the clinical wards of Sir P. Dun's hospital attracted much attention. They were both examples of pleurisy occurring in young men, and in both extensive effusion into the affected side of the chest took place at an early period of the disease.

The general and stethoscopic phenomena of pleurisy followed by effusion, were so well

* See Dr. Reid's Paper, Trans. of the Association of the King's and Queen's College of Physicians, vol. v.

marked, and the cases of so urgent a nature, that the operation of paracentesis of the chest would have been performed, had not a single stethoscopic phenomenon seemed to prove that the pleuritic effusion was not simple and uncomplicated, but accompanied by some other lesion. In both cases, egophonia, dilatation of the intercostal spaces, increased size and dulness of the affected side, all occurring in the usual order, indicated most extensive effusion; but in addition to these phenomena, referrible to empyema, bronchial respiration was to be heard loud and distinct over the *anterior* portion of the chest, particularly in a line drawn vertically through the mammary region. The same phenomenon was observed posteriorly in the supra-spinal and infra-spinal regions, and in no part of the side was the sound of respiration completely null.

Lænnec mentions adhesions between the pleura costalis and pulmonalis, as occasioning a similar phenomenon in pleurisy, but his observations on this subject are not very definite, nor do they point out the extent to which such a cause may operate in rendering the respiratory sounds audible, notwithstanding the presence of copious pleuritic effusion.

The bronchial respiration, however, occurring so loudly over the whole anterior and postero-

superior portion of the chest, and the want of nullity of respiration over the postero-inferior, might be accounted for by supposing that a double lesion had taken place, that there was a complication of pneumonia with pleuritis,* and that the lung had become solid; but as no crepitating rale had occurred in either of these cases from the very commencement of the disease, this hypothesis appeared untenable; and on the other hand, we were not prepared by our experience of cases of empyema with copious effusion, to expect extensive adhesions.

* M. Tarral, in a Paper published in the Journal Hebdomadaire, No. 82, advances the opinion, formerly almost general among pathologists, that pleurisy is always accompanied by pneumonia, and supposes that the crepitating rale is masked by the effusion so as to escape observation, unless the patient be examined in different positions. He also believes that the crepitating rale is present only in the commencement of the disease, and that the morbid alterations produced by true inflammation of the lung, cease to advance, or even when produced disappear, as soon as the pleuritic effusion becomes copious.

That this may happen in many cases we do not deny, but the most accurate examination of the above cases, the patients being placed in a great variety of positions, failed to detect the slightest crepitating rale; and in one remarkable case, where the patient, attacked with incipient pleurisy, died of another affection, not the least trace of inflammation of the parenchyma could be detected on dissection.

The appearances on dissection most satisfactorily explained all the phenomena, and (omitting particulars not bearing on the present point of inquiry) were almost precisely similar in both.

A very strong and uninterrupted adhesion extended from about two inches below the clavicle of the affected side, in a line passing through the middle of the mammary region, nearly to the bottom of the anterior part of the lung.

This adhesion, about two inches in breadth, was very firm and close, so as to form an intimate union between the pulmonary substance and the anterior parietes of the chest, and extending nearly from the apex of the lung to its base. Along this line the pulmonary tissue formed a plate of compressed lung, about two inches in thickness, which, like a vertical partition, divided the pleural cavity into two chambers, each filled with sero-purulent matter, and separated by the lung extending from its root to its anterior adhesions.

It is to be observed that these two cavities communicated towards the clavicle, where the adhesion was wanting, and were still further divided by other adhesions posteriorly, extending upwards from the root of the lung to the superior lobe.

The lung forming these different partitions was red, compressed, and totally destitute of crepitus. The air cells were rendered impermeable by the pressure of the pleuritic effusion, but the bronchial tubes were not obliterated, and could easily be traced to within a line or two of the parietes of the chest.

We have stated that in no part of the affected side was there an absolute nullity of sound during respiration. This may be accounted for by the great extent and intimate connexion of the adhesions with the parietes of the chest, which not only made the bronchial respiration audible in the parts immediately over them, but by means of the ribs communicated the sound to parts even remote from the adhesion itself.

In both patients there was severe cough and puriform expectoration ; and the bronchial mucous membrane was accordingly found in an intense state of inflammation. In one of the patients, nature had attempted the evacuation of the fluid by means of ulcerations, which in several places had perforated the pleura and intercostal muscles, and formed sinuous passages into the sub-cutaneous cellular structure.

In pleurisy the superjacent integuments often become tender, swollen, and œdematous, at

the very commencement of the disease, in consequence of the inflammation spreading to those parts: a similar occurrence takes place at times in cases of hepatic abscess, the inflammation being here propagated from the inflamed liver to the superjacent intercostal spaces. In a case which was lately under our care in the Meath Hospital, the œdema, pain, and tenderness thus produced in the hepatic region, formed the chief subject of complaint. When, however, the abscess was evacuated by means of bursting into the lungs, the external soreness and swelling rapidly disappeared. It is thus that a careful examination of the integuments sometimes reveals the suppuration of organs in the subjacent cavities.

In the employment of percussion we have confirmed an observation already made by others, that the patient experienced much more pain from it on one side than another, and frequently this tenderness existed to such a degree in certain portions of the chest, as to render the use of percussion as a means of diagnosis quite impossible. The cases in which we have observed this great tenderness of the parietes of the chest were either acute pleuritis, or which was much more frequently the case, tubercular consumption. Now with reference to the latter cases we have almost uniformly

found, that the greatest pain was felt on the side where the disease had made most progress. In one remarkable instance the patient could not bear the slightest percussion on the right side, while on the left it appeared to give little or no pain. Here the tenderness could not be explained by the emaciation of the patient. The right lung presented all the phenomena of extensive tubercular development, with the existence of anfractuous cavities in its most superior portion. In the left, on the contrary, the respiration was every where puerile, and the sound clear on percussion.

On dissection the right lung was found adherent in its superior portion, and filled with softened tubercles, while in the left we found only two or three crude indolent tubercles.

There is another highly interesting circumstance connected with percussion, which we do not think has as yet been described. Some time ago, on percussing a patient who had laboured under a pectoral affection, with several symptoms indicative of tubercular devellopment, we were surprised to observe that after each stroke of the ends of the fingers, a number of little tumours appeared, answering exactly to the number and situation of the points of the fingers, where they had struck the integuments of the chest. These having continued visible

for a few moments, subsided, but could be again made to appear on repeating the percussion. In this case percussion excited a good deal of pain : the situation in which these little tumours were most apparent, was in the subclavicular region, and over the great pectoral muscle. Since this observation we have seen the same phenomenon in a number of cases.

How far this phenomenon may be connected with, or depending on internal disease, is yet to be ascertained. It is seldom met with unless in cases where the patients are emaciated to a certain degree. In these individuals we often find on using percussion quickly and with some force, that after each blow a degree of pallor is observed in the parts struck, exactly answering to the points of the fingers; this is instantly succeeded by the return of redness and the erection of a little tumour, which has often a slightly quivering motion, and which subsides in the course of one or two seconds.

We have observed this to occur most frequently in the superior and anterior portions of the chest, but have also met with it in other situations, such as the arms, back, &c. In some cases the patients complained much of pain on percussion, while in others they did not appear to suffer more than usual.

This appearance seems to be owing to the contraction of muscular fibres, in consequence of the irritation of the blow.

ENCEPHALOID TUMOURS IN THE POSTERIOR MEDIASTINUM AND LUNG. DYSPHAGIA.

A woman, aged 30, was admitted in the autumn of 1828, labouring under cough, which had continued for some months: this was accompanied by mucous expectoration and great debility.

On admission the countenance was livid, and expressive of pectoral distress; dyspnœa considerable; pulse accelerated and small. She had frequent cough with mucous expectoration, but presented no symptom of abdominal disease: next to the cough she complained most of difficulty of swallowing, which she declared was owing to a lump in her throat, referred by her to the lowest portion of the neck anteriorly. This difficulty of swallowing had existed for some months, but had lately much increased. The pharynx appeared healthy, and no tumour could be felt by external examination.

Upon using percussion we found that the left clavicle and antero-superior region of the left side sounded completely dull. In these si-

tuations also the respiration was distinctly bronchial, and the resonance of the voice approached to perfect pectoriloquism. These phenomena were also audible in the supra-spinous region of the same side. Over the rest of the lung the sound, on percussion, was clear, but the respiration was masked by several of the bronchitic rales. In the right lung the respiration was puerile.

From these observations we came to the conclusion, that the superior portion of the left lung was in a state of solidity, in all probability proceeding from tubercle. We could not, however, explain the dysphagia. She unexpectedly expired on the night following her admission, when dissection discovered the following lesions.

The left lung was found compressed from above downwards, by an extensive encephaloid tumour, that appeared to spring from the posterior mediastinum, which it filled, and extended into the upper portion of the left thoracic cavity. The trachea and œsophagus, from the lower portion of the neck downwards, were enveloped by this mass. At the left side, exactly at the situation to which the patient referred the obstruction in swallowing, the tumour formed three lobes or masses, each about the size of a pigeon's egg, one of which was found to have so pressed on the œso-

phagus as to form an elevation on its internal surface, and considerably diminish its calibre in this situation. The sub-clavicular and acromial regions were filled by the tumour, which answered very exactly to Lænnec's description of the *non-enkysted cerebriform masses:* no softening appeared to have commenced in any portion of it. The lung, proportionably diminished in size, contained numerous masses of the same nature, varying from the size of a pea to that of a kidney bean. No disease could be detected in the right lung.

The appearances on dissection in this highly interesting case fully explained the stethoscopic phenomena; immediately below the left clavicle was a solid mass, displacing the lung, and in contact with the trachea : hence, the dulness of sound, the bronchial respiration, and loud resonance of voice approaching to pectoriloquism. The dysphagia is also satisfactorily accounted for by the pressure of the tumour on the œsophagus.

We have never before met with this remarkable disease, and regret much that we could not obtain a more accurate account of the patient. The stethoscopic phenomena were so exactly similar to many cases of tubercular solidity of the upper lobe of the lung, that we had no

doubt of the existence of this lesion; and were not a little surprised at finding our diagnosis mistaken. We are not aware of any similar case being on record.

The co-existence also of the encephaloid masses in the substance of the lung with bronchitis, rendered all the phenomena observable by the stethoscope perfectly analagous to many cases of phthisis, in which the upper portions of the lung have become solid, while the lower are studded with tubercles. These phenomena, occurring in an individual who had for months laboured under an increasing cough, with emaciation and debility, were very likely to mislead.

With reference to the value of percussion, we may remark, that the dulness of sound on percussion is by no means constantly proportioned to the extent of pulmonary disease. Thus in a patient who died of pneumonia, a great portion of both lungs was found inflamed, and the inferior lobes approached to hepatization, yet during life the sound on percussion had appeared to us clear, a circumstance explained by the remarkable fact, that the greater portion of the surface of the lungs had escaped disease.

We have also observed several cases of phthisis, in which, during life, the chest sounded

every where well, and yet upon dissection the lungs were found almost solid from general tubercular development. This was particularly remarkable in the case of Julia Blake, who died at Sir P. Dun's Hospital; when admitted she laboured under dyspnœa, hurried respiration, harassing cough, with muco-purulent expectoration and fever. The disease was apparently acute, and she was scarcely, if at all emaciated; the chest sounded every where well, but the respiration was masked by a universal muco-crepitating rale. It is extremely difficult, and we believe even occasionally impossible, to distinguish such cases of tubercular phthisis from severe bronchitis, with copious effusion into the smaller bronchial tubes, unless indeed the inefficacy of the most active treatment should lead to the suspicion, that we have to contend with something more than bronchitis. The occurrence of dulness on percussion in any part of the chest, in those suspected to labour under phthisis or pneumonia, is a positive symptom of great value; but its absence, as we have just seen, cannot be looked upon as certainly indicating that the lung is not considerably solidified.

Accelerated respiration and quick pulse are generally considered as necessarily accompanying phthisis in its advanced stages: the following cases are remarkable exceptions to this doctrine.

A man named —— Neil, died at Sir P. Dun's Hospital on the 18th of March, 1829. The development of tubercles was very extensive, and tuberculous abscesses existed in the superior portions of both lungs, with general bronchitis. He presented the usual symptoms of hectic fever. On the 11th of March, his skin being hotter than usual, and his pulse 126, the respirations, as carefully reckoned both by means of the stethoscope and the motions of the chest, were only 14 in the minute.

	Pulse.	Respirations.
12th March, ..	126 ..	13
14th ——— ..	116 ..	26
16th ——— ..	132 ..	26
17th ——— ..	144 ..	17

Those who contend that animal heat is generated by the process of respiration, account for its increase in those diseases of the lung, which like phthisis and pneumonia, render considerable portions of the lungs impervious to the air, on the supposition that this process is carried on with more rapidity in the parts still pervious. This hypothesis is obviously inconsistent with the case just detailed, where an increase of temperature coincided with extensive destruction of the lung, and a slow respiration.

We have observed increased heat of skin, in

many cases of extensive pneumonia, accompanied by general bronchitis, circumstances the most unfavourable to an active performance of the respiratory function. The above case forms a striking contrast with that of a man who died of tubercular phthisis in the Meath Hospital, in the month of December, 1829, who had been during a period of eighteen months, under our daily observation, and presented the following very curious succession of symptoms. Severe pectoral affection, with fever and crepitating rale in the upper portion of the right lung, terminated after some time in the formation of abscesses in the part first affected, and attended by great emaciation and hectic fever. The tubercular development gradually proceeded, and ultimately extended over the greater portion of both lungs, while the cough continued very severe, and puriform expectoration copious. After many months, however, although the latter symptoms were unabated, and the stethoscopic phenomena indicative of extensive abscesses persisted, yet the acceleration of pulse gradually subsided, and during the month preceding his death, he presented the extraordinary spectacle of a man emaciated to a great degree, labouring under constant dyspnœa, while his respiration always amounted to upwards of 50 in a minute, and his pulse never exceeded 65 : at this period there was no sweating or other symptoms of

hectic fever, and from this circumstance, and the duration of the complaint, we were led to suspect that the numerous cavities had become lined by cartilaginous membrane, and were thus insulated from the rest of the system, a suspicion completely verified by the dissection.

Laryngitis.—A considerable number of cases of this formidable disease, in its chronic state, were treated by us during the year. Some of these cases were examples of simple inflammations from cold, many occurred in constitutions with a syphilitic taint, and these we uniformly found to be the most obstinate and distressing. Some presented frequent attacks apparently of spasm of the glottis; and in several, complication with disease of the lung existed.

The difficulties which the last mentioned circumstance causes in deciding upon the exact state of the lung, have not been sufficiently dwelt on by authors. In point of fact, whenever the disease in the larynx is sufficient to cause sibilous breathing, all the stethoscopic phenomena depending on the characters of the respiration are singularly modified. Thus, where the obstruction is so great as to cause the respiration to be long and painful, the expansion of the air cells is often quite inaudible. We recollect once examining a patient, labouring under laryngitis, in

the Meath Hospital, in whom the obstruction was so great as to require the operation of tracheotomy. Previously to the operation, the chest sounded clear, but the respiratory murmur was extremely feeble, so that the stethoscopic phenomena closely resembled those of emphysema of the lungs. When, however, a free opening had been made in the trachea, the respiratory murmur became at once puerile, and did not subside to the natural intensity for some hours.

A knowledge of this fact is of great practical importance in investigating the state of the lungs in persons labouring under chronic laryngitis, an inquiry which ought never to be omitted, on account of the frequent occurrence of tubercles in persons afflicted with this disease; for it will appear presently that mercury, one of the most efficacious remedies in simple laryngitis, is inapplicable in these complicated cases. In fact, it is scarcely credible how far the existence of laryngeal obstruction tends to mask all the stethoscopic phenomena, even in cases of extensive pulmonary disease. Thus we have seen several cases of phthisis, in which extensive excavations and numerous tubercles were found in the lungs on dissection, and yet during life no unequivocal evidence of this state of the lungs had been derived from the use of the stethoscope. The extreme weakness, and alter-

ed tone of the voice in this disease, deprives us of the assistance which the discovery of bronchophony or pectoriloquism would give in forming our diagnosis, and the protracted and gradual inspiration either prevents or renders very indistinct the valuable phenomena of crepitation, gargouillement, cavernous, bronchial, and puerile respiration; under these circumstances, the general symptoms and percussion are our only guides, and we have already seen how uncertain both these are.

In simple chronic laryngitis occurring in persons of good constitution, the chief and most obvious symptom is hoarseness, increased by exertion of the voice. When the disease is obstinate it should not be neglected, as there is always danger of its passing into a worse form.

The most efficacious treatment consists in enjoining *silence*, a point that cannot be too strongly insisted on; next to this in value, is the frequent application of a few leeches to the region of the larynx: we have also seen much benefit follow the exhibition of mercury, so as to affect the gums slightly. When we wish to employ counter irritation, we prefer the tartar emetic ointment to the employment of blisters. It should never be forgotten that this disease is extremely liable to recur, to prevent which we

have, in addition to the usual means, recommended the habitual use of cold washing of the throat night and morning. In chronic laryngitis, the state of the fauces and pharynx should always be investigated, as in many cases, where no soreness of these parts is complained of, we have found, on inspection, that numerous small, irregular, and superficial excoriations, (if we may so term them) bounded by red lines, and of a greyish colour, occupied the upper portion of the pharynx; and we have strong reasons for thinking that the disease of the laryngeal membrane is of a similar nature, and has been propagated from the pharynx, in the same way that acute laryngitis not unfrequently originates in pharyngeal inflammation.

The repeated application of a strong solution of the nitrate of silver, ten grains to the ounce, by means of a camel-hair pencil, to the parts within our reach, proves very serviceable: after a slight alterative course of mercury, the use of the compound decoction of sarsaparilla, and the general tonic plan of treatment, will be found most useful in such cases.

This complaint is much more obstinate and intractable, where it occurs in persons who have used large quantities of mercury for the cure of syphilis. In such broken down constitutions relapses are of frequent occurrence, and the

disease very apt to terminate in ulceration of the cartilages. A nutritive diet, a seton in the neighbourhood of the affected part, the decoction of sarsaparilla, with the cautious use of corrosive sublimate or arsenic, the application of the nitrate of silver to the pharynx and rima glottidis, by means of lint moistened in the solution already recommended, and mercurial inhalations, have in some cases succeeded in removing the disease: although the inflammation may have subsisted for a considerable time, the occasional application of leeches should not be neglected, particularly on any exacerbation of the complaint.

When a decided phthisical tendency accompanies chronic laryngitis, the case is generally hopeless.

The application of belladonna plaster, or of one made of Scotch snuff, as recommended by an American professor, to the region of the larynx during the spasmodic exacerbations, has been found by us of great utility. In many of our cases these attacks of spasm frequently supervened, producing terrible difficulty of breathing, which we have often found to yield with rapidity to the pediluvium, and the exhibition of an antispasmodic draught, consisting of the ammoniated tincture of valerian, ether, and

opium. We cannot help suspecting that in chronic laryngitis, the operation of tracheotomy is sometimes unnecessarily performed, and that the immediately distressing symptoms would frequently yield to this practice.

In a case of this description, the patient had been repeatedly bled for these attacks. On her admission, however, we uniformly pursued the above practice, always with immediate benefit. In another case, in which a syphilitic taint existed, the spasmodic paroxysms were so severe and long continued as apparently to call for instant operation, yet the breathing was constantly relieved in a few minutes after the medicine had been swallowed.

Having already spoken of some causes which produce obscurity in the diagnosis of pectoral diseases by means of the stethoscope, we shall add, before concluding this part of the subject, the particulars of a very rare case, which we owe to the kindness of Dr. Osborne, under whose care it occurred at Sir P. Dun's Hospital, where we witnessed the post mortem examination.

A man about forty years of age died of tubercular phthisis.

The œsophagus, after passing through the

usual opening in the diaphragm, was found to re-enter the thorax by another very large opening in the tendinous portion towards the left side. The stomach occupied the inferior portion of the left thoracic cavity, its cardiac and pyloric extremities, both lying in the opening.

A considerable portion of the transverse arch of the colon was also included in the left side of the chest; these viscera loosely, but permanently fixed by means of the serous membranes, all rested on the convex surface of the diaphragm, and pushed the heart and mediastinum towards the right side. The margin of the unnatural opening in the tendinous portion of the diaphragm was formed by a round tendinous cord about the thickness of a quill, which added greatly to its strength, and was evidently of very ancient formation. The lung, small and tuberculated, did not exhibit any signs of compression, and was not adherent to the abdominal viscera. It may be easily conceived that the left pleural cavity was continuous with the cavity of the peritoneum, and both were lined by the one serous membrane.

This case is pregnant with interest: we observe in the adult *a new cause of displacement of the heart*, and a new source of difficulty in stethoscopic examination; for it is quite evident that

auscultation applied to the left side of the thorax would have furnished very fallacious information, and the sounds heard would have varied according as the stomach and colon were full or empty, &c. &c. The same observation applies also to percussion; and the fact is, that during the life of this patient, those who examined his chest could not reconcile the phenomena afforded by auscultation or percussion with those of any known disease of the chest. The respiration was heard every where, except inferiorly and anteriorly on the left side, and here percussion gave a clearer sound than natural. No rale was audible in this part of the chest, but borborygmi and sounds resembling those produced by the motion of fluids in the intestines were observed.

This man vomited frequently while under observation in the hospital: now as the stomach was placed entirely out of the reach of being compressed by the contractions of the diaphragm, and as this contraction completely defended it from the influence of the abdominal muscles, it is clear that in this case vomiting must have occurred independently of compression, either of the diaphragm or abdominal muscles. This fact, worth a thousand experiments, *completely decides the question, that vomiting may be produced by the action of the stomach itself, un-*

assisted by any external compressing force, notwithstanding what Le Gallois and late physiologists have said to the contrary.

We are strongly inclined to think that the hernia of some of the abdominal viscera into the cavity of the chest, was in this case congenital. The non-compressed state of the left lung, which appeared to have been incompletely develloped, the great strength of the tendinous margin of the opening in the diaphragm, and the appearauce of the serous membranes which connected the parts, all seem in favour of this opinion.

In the first volume of *Medical Observations and Inquiries*, page 26, is a case in which a similar malformation was observed in a child, who died in an hour and a half after he was born. The unnatural opening in the diaphragm, and the position of the stomach within the chest, were exactly the same as in the man whose dissection we have related. In the child, however, *more* of the intestines, as well as the spleen, were lodged in the left side of the thorax, so that respiration was rendered very difficult, and finally impossible. The same observation applies to most of the cases on record, and from which it appears that a hernia of this nature is almost universally fatal in the course of a few hours

after birth, in consequence of the obstruction to the respiration it necessarily induces.

DISEASES OF THE ABDOMINAL VISCERA.

DISEASES OF THE LIVER.

ABSCESS IN THE RIGHT LOBE OF THE LIVER. PUNCTURE OF THE GALL BLADDER. ESCAPE OF THE CONTENTS OF THE ABSCESS BY THE INTESTINES. SUBSEQUENT ABSCESS OF THE LEFT LOBE BURSTING INTO THE PERITONEUM.

Bernard Reilly, aged 39, a butler, 15th of August, 1828. This man was attacked for some weeks before admission with symptoms of hepatic inflammation, at first rather obscure, but ultimately more distinct, and attended with slight jaundice of three days' duration: for these he was not treated with much activity, and about three weeks before admission he was affected with shiverings succeeeded by sweatings. On admission the shiverings were not well marked or regular, but he laboured under nocturnal heat and perspirations. He then complained chiefly of cough and nausea; he was not jaundiced, and the stools presented a natural appearance; the right side was found to be dilated one inch and a half, but the intercostal spaces were not distended. The patient complained

of great soreness from the fourth rib downwards; the right hypochondrium was full and tender; no fluctuation could be detected. On percussion, the right side from the third rib downwards sounded extremely dull; examined by the stethoscope, the respiratory murmur was found to be generally feeble in the right lung, but from the fifth rib downwards it became extremely weak, and was only audible on a forced inspiration. There was no egophonia, broncophonia, or bronchial respiration. He continued for a fortnight without any remarkable change, when the tumefaction increased.

On the 29th, an incision of about two inches in length was made through the integuments, over the most tumid part of the hypochondrium, some layers of muscles were divided, the wound was plugged with lint, and kept open for six days, during which no matter appeared.

On the 6th of September a circumscribed tumour, evidently containing fluid, appeared between the median line of the epigastrium and the termination of the wound. The patient was greatly sunk. On the following day a lancet was pushed from the wound into the tumour, when some dark coloured bile flowed out; the circumscribed tumour disappeared, but the fullness of the side remained. About four hours

after this operation the patient expressed a sudden desire to go to stool; he had two very copious motions, consisting apparently of purulent matter and bilious fæces. Next morning the improvement was remarkable; the countenance, which for the last two days had been hippocratic, had recovered its natural expression; the pulse was slower and fuller, and the patient expressed great relief. On examination of the belly, the tumefaction was found much diminished. In a few days all swelling of the right hypochondrium had disappeared, and the sound on percussion in the infra-mammary region, had become clear. The patient was put on a generous diet, and for some days improved so much as to be able to take exercise. A diarrhœa, however, continued from the time of the disappearance of the tumour, and resisted every attempt to check it, while emaciation proceeded rapidly.

On the 3rd of October, twenty-three days after the subsidence of the first tumour, a small hard swelling was observed in the epigastric region, towards the left side; it was about the size of an egg, and slightly painful; this swelling increased daily, and soon became fluctuating: the diarrhœa continued.

On the 16th he was attacked with excru-

ciating pain in the epigastrium. This returned several times so severely as to throw him into convulsions, and was followed by great tenderness and swelling of the abdomen, extreme prostration, and alteration of the features. The pulse became thready and weak; the epigastric tumour wholly disappeared: in this state he remained for eight days, the diarrhœa having continued till his death, which took place on the 24th of October.

DISSECTION,

Twenty-four hours after death.

Body greatly emaciated; belly tympanitic, some œdema of feet. An incision was made through the right sterno-clavicular articulation to the left, and thence carried through the cartilages of the ribs downward to the pubes. The flap being turned back, the thoracic and abdominal cavities were exposed.

Thorax.—The lungs presented nothing remarkable. The pericardium was universally adherent to the heart, which was otherwise healthy.

Abdomen.—The peritoneal cavity was found filled with a semi-transparent fluid, containing a large quantity of flocculi, forming in various

places, masses having the consistence of jelly. The serous membrane was of a deep red colour, and mottled appearance. In some places the gelatinous effusion was in a commencing state of organization, assuming an appearance of layers, *and presenting blood vessels of a deep blue colour in its interior.* The liver was adherent to the diaphragm and abdominal parieties over the whole convex surface. The adhesions of the right lobe were strong and ancient; those of the left, soft and recent. In the left lobe an abscess of the size of an orange was discovered a little above the lower edge, and communicating inferiorly with the peritoneum by a fistulous opening, sufficiently large to admit a quill. It contained a yellowish puriform liquid, mixed with fragments of hepatic substance, softened, and of a yellowish colour; interiorly and posteriorly this alteration extended for about an inch into the substance of the liver. The right lobe being examined, a cavity lined with a semi-cartilaginous membrane of a dark grey colour was found in the inferior portion. This communicated with the duodenum by an opening large enough to admit the finger with ease. The hepatic substance was generally granular and of a livid colour, mottled with yellowish white. The gall-bladder contained natural coloured bile; it presented superiorly a spot exactly corresponding to the size and form of a lancet puncture; this

was covered by a thin transparent membrane. The pyloric orifice of the stomach was narrowed, with thickening and induration of all its coats, particularly the cellular and mucous. The mucous membrane of the duodenum was indurated and thickened: the remaining portions of the intestinal tube appeared healthy; spleen enlarged; kidneys healthy; brain not examined.

VAST HEPATIC ABSCESS. PERITONITIS CONSEQUENT ON THE OPERATION FOR OPENING THE ABSCESS.

Eliza Clare, aged 20, December 31st, 1828. This woman was admitted in the last stage of her illness, which had been for four months standing. She was emaciated to a great degree, and laboured under severe hectic fever. The right side was much dilated, and the chest sounded dull from the fifth rib downwards, and the liver could be felt extending to nearly the spine of the right ilium. In the centre of this tumour there was a considerable elevation, in which distinct fluctuation could be felt. Her distress from the pressure and weight of the tumour was extreme.

On the sixth of January a caustic issue was applied over the abscess; the slough did not separate until the fifteenth, and although the

matter appeared to be close to the abdominal parietes, it did not shew any disposition to escape. On the following day a small valvular incision was made through the ulcer left by the detachment of the slough, when a few ounces of greenish puriform matter were evacuated. This operation was followed immediately by excruciating pains in the lower portion of the belly, and a sensation as if this was caused by the escape of matter into the peritoneal cavity.

In three hours after the operation there was violent pain in the abdomen, increased by pressure on the extension of the kness, which she kept constantly drawn upwards. The countenance was anxious and collapsed; constant vomiting and screaming; pulse 140, small and wiry.

A blister was applied to the inside of the arm, and the vesicated surface ordered to be sprinkled with morphia. She was allowed porter, and took g^{r} ss. of opium every second hour. Under this plan of treatment the peritonitic symptoms entirely subsided in a few days. The wound closed, but the patient ultimately sunk on the 12th of February, in a state of complete exhaustion, twenty-seven days after the operation.

DISSECTION,

Ten hours after death.

Thorax.—Heart of the natural size. The capacity of the left ventricle was found to be greatly diminished. The inferior lobe of the right lung was found to be carnified. The remainder of the pulmonary organs presented nothing unnatural.

Abdomen.—The liver extended to the anterior superior spinous processes of the os ilium on both sides, filling the hypochondriac and umbilical regions, and extending upwards as far as the third rib ; its convex surface was universally adherent to the parietal peritoneum. A vast abscess occupied nearly the whole of the right lobe, containing upwards of four pints of purulent matter. Superiorly this abscess was covered by a layer of hepatic substance, immediately under the serous membrane of not more than two lines in thickness. In the left lobe were several small abscesses. No fluid was found effused in the cavity of the peritoneum, nor were there any marks of inflammation having existed in that membrane at the time of her death, but a great number of organized adhesions were observed between the convolutions of the intestines, and also connecting the latter with

the parietal peritoneum. The gastro-intestinal mucous membrane appeared softer than usual, but presented no morbid vascularity.

NUMEROUS ABSCESSES IN THE LIVER. PNEUMONIA.

October 23rd, 1828. William Kelly, aged 39, was admitted labouring under symptoms of hepatitis and pneumonia of ten days' standing. From the commencement of the attack he had profuse sweating, and on admission was covered with a miliary eruption. On examination with the stethoscope, pneumonia in the first degree was discovered in the inferior lobe of the right lung, and the liver could be felt extending far into the abdominal cavity. He was bled actively, and used the tartrate of antimony in large doses, by which means the pneumonic inflammation subsided to a certain degree; but the hepatitis continuing, he was ordered larger doses of calomel, with a second bleeding, both generally and locally. In a few days, the calomel having been continued without salivation, a tumour appeared immediately below the ensiform cartilage, and to the right of the median line; this soon became fluctuating and distinct. The operation of incision, as in the case of Reilly, was performed; at this time the stethoscopic symptoms of pneumonia disappeared, but the abscess increased, and he died on the 30th.

DISSECTION.

The liver was found enormously enlarged; it was only adherent in the point corresponding to the incision, and contained a great number of abscesses, varying from the size of a nut to that of an orange, around many the hepatic substance was in a state of purulent infiltration. *The gall bladder contained a perfectly transparent viscid fluid, which did not coagulate on the addition of nitric acid, or the application of heat; after the addition of corrosive sublimate it became slightly opalescent on standing.* The serous membrane was generally healthy; nothing remarkable was found in the intestinal tube but a quantity of yellowish and viscid mucus.

NUMEROUS ABSCESSES OF THE LIVER. CARNIFICATION OF THE LUNG.

Francis Lindsay, aged 30. This patient was admitted on the 15th November, 1828, labouring under continued fever, which, after some days, assumed the gastric character; the belly became tender, and he experienced an attack of dysentery which was checked by the usual remedies; he continued unwell, being affected with copious sweats, and his urine de-

positing large quantities of lithate of ammonia. On the 29th of December a considerable enlargement of the liver was detected, the side was dilated, and from the fourth rib downwards sounded dull, with absence of respiratory murmur; the purging returned. He died on January the 3rd, having been seven weeks ill.

DISSECTION.

Brain.—This organ was found perfectly healthy.

Thorax.—On making a vertical section of the right lung, the pulmonary tissue of the superior lobe was found healthy, but immediately below this the lung was carnified; this portion terminated abruptly, and was bounded by a well marked line, above which the pulmonary tissue was quite healthy.

Abdomen.—The liver extended from between the third and fourth ribs on the right side to below the umbilicus. The right lobe presented a large abscess capable of containing two quarts; this was lined by a firm cyst, and filled with purulent matter, containing flocculi of lymph. With the exception of a small portion of the left lobe, the liver was burrowed by numerous abscesses, separated from one another only by thin plates of softened hepatic tissue.

The gall bladder was full of healthy bile. The stomach and small intestines were healthy. The mucous membrane of the colon was found thickened, hardened, and of a yellowish colour; it presented numerous ulcerations, between which it was studded with small granulations.

ABSCESS RESTING ON THE CONVEX SURFACE OF THE LIVER, COMMUNICATING WITH THE LUNG, AND OPENING EXTERNALLY.

Honor Fletcher, aged 23, was admitted on the 25th of May, 1829, with febrile symptoms of nine days' standing, preceded for three weeks by copious hæmoptysis; she had amenorhœa for the last twelve months, but had been otherwise healthy.

On admission, the skin was hot, the pulse full and quick; she complained of general pains, but particularly of one very severe, which she referred to the region of the liver; this was increased by coughing, pressure, or motion; there was a distressing short cough with yellow tenacious expectoration; appetite not much impaired. On percussion we found dulness of the right side, both anteriorly and posteriorly; here the respiratory murmur was only audible during forced inspiration. Leeches were applied, and blue pill and taraxacum exhibited: in the

course of four days an uncircumscribed puffy tumour appeared over the liver, between the seventh and ninth ribs. An incision was made through the integuments, but no matter given exit to. The hæmoptysis returned, and the cough became very troublesome. Poultices were diligently used, and on the 10th of June the abscess was opened, when a great quantity of bloody puriform matter escaped. At this time the hæmoptysis ceased, and the patient improved considerably for about three weeks, when the abscess again made its appearance; she would not allow any operation to be performed, and shortly after this left the hospital.

She was re-admitted on the 13th of July, with an enormous abscess in the former situation; this was opened, and about a pint of dark coloured matter given exit to. On the next day the abscess presented the appearance of a very extensive anthrax, upwards of six inches in diameter and two in depth; it sides elevated, irregular, and covered with a whitish slough, which could be detached by pressure; she had cough with muco-puriform expectoration and constant diarrhœa; in this state she continued for a fortnight, when on removing the dressings during our visit, we observed that when she coughed, air escaped with great force from the bottom of the wound, and was also sucked in

during inspiration with a whistling sound. Between the eighth and ninth ribs a fistula was discovered capable of admitting a small quill, through which a probe could be passed upwards and inwards for about three inches, when it was impeded by a solid resisting body.

The infra-mammary region sounded clear on percussion; examined by the stethoscope, the respiration was cavernous, and accompanied, during inspiration, by a sound like the tick of a watch: when she coughed or made a forced inspiration, a loud gargouillement was audible. There was no metallic tinckling, bourdonnement, or pectoriloquism, but the voice resounded strongly from the sixth rib upwards, while anteriorly and posteriorly the respiratory murmur appeared natural. She died on the following day.

DISSECTION.

Great emaciation; the external sore extended from the sixth to the tenth rib; it was about four inches in breadth; between the eighth and ninth ribs the fistula was plainly observable. On opening the abdomen the serous membrane was found healthy, with the exception of that portion which covered the liver laterally and superiorly. Here the liver adhered

to the diaphragm. On the centre of the convex surface of the liver we found the base of the abscess, formed by a circular portion of thick false membrane of about two inches in diameter, external to the hepatic peritoneum, but producing a depression on its surface: the costal portion of the diaphragm, for an extent corresponding to the base of the abscess, was destroyed, but adhered round its edges. This abscess communicated with the lung by a perforation through the diaphragm, of about the same size as the external fistula; this led into an abscess in the lower lobe of the right lung, which was narrow, elongated upwards, and presented many of the characters of a pneumonic abscess; it had no lining membrane, and communicated with numerous bronchial tubes; around it the pulmonary tissue was of a greyish white colour, softened, but not granular. The diseased portion did not terminate by any distinct line, and occupied about two-thirds of the lower lobe, which was universally adherent to the diaphragm, and for about three inches to the costal pleura: the remainder of the lung was healthy.

The mucous membrane of the stomach was pale and soft, lower portion of ileum red, and presenting some apthous ulcerations; mucous membrane of the colon covered with fungous elevations, and numerous apthous ulcerations.

It is a singular circumstance, that abscess of the liver, hitherto a very rare disease in Dublin, should have been extremely frequent during the last year; besides the cases we have detailed, several others were observed in our wards, and in most of the hospitals of Dublin similar cases occurred.

The first case, that of Reilly, was very remarkable: for several days after his admission we felt great difficulty in deciding on the nature of his complaint, which presented several symptoms referrible either to empyema of the right side, or to enlarged and suppurating liver. The feebleness of respiration, the tenderness and dullness of the side, together with a marked dilatation, might be caused by an empyema, particularly as the secretion of bile appeared natural, while cough and difficulty of breathing were chiefly complained of; add to this, that the swelling of the hypochondrium might have been occasioned by depression of the liver, as frequently occurs in empyema of the right side. We, however, ultimately determined that the disease was hepatic, from the history of the case, and the fact that the dilatation was unaccompanied by elevation or protrusion of the intercostal spaces, a circumstance strongly indicating that the dilatation arose from the pressure of a solid, and not of a fluid.

It may be remarked also, that to depress the liver, the empyema must be very considerable, and under these circumstances the respiratory murmur would have been altogether inaudible in the infra-mammary region, even during a forced inspiration. After some time, the tumefaction in the right hypochondrium becoming more distinct, and the constitutional symptoms of internal suppuration being more evident, we had recourse to the operation of incision, as before practised with success.*

Soon after this, the appearance of the circumscribed and fluctuating tumour near the epigastric termination of the incision, led us to conclude that the abscess had at length approached the surface, several experienced surgeons concurred in this opinion, and they advised that the tumour should be immediately opened.

The result of the operation, added to similar cases detailed by Andral in his Clinique Medicale, should make a strong impression on the mind of the practitioner ; for distended gall bladder, under certain circumstances, so closely simulates hepatic abscess, that the ablest surgeons, such as Dupuytren and the late Mr.

* See Clinical Observations by Dr. Graves, Dublin Hospital Reports, vol. iv.

Todd,* have been surprised at finding bile follow an incision instead of pus, a mistake which we believe has been fatal in every case except that we have detailed. It is to be observed, that in many subjects without hepatic disease, the gall bladder is not covered by the liver anteriorly, and is therefore liable to be punctured in the operation. This position of the gall bladder is still more usual in livers with a thickened and rounded margin.

Had the smallest quantity of bile found its way into the peritoneal cavity, peritonitis must have ensued, a result most *probably* prevented by the existence of adhesions at the point where the puncture was made. The patient had been costive until the abscess burst into the intestinal tube, after which a constant and intractable diarrhœa persisted until his death ; it was probable, therefore, that the secretions from the abscess were of a purgative nature, a consideration that led us to conclude that the fistula remained open, which was verified by the dissection. The sudden supervention of peritonitis coinciding with the subsidence of the second tumour, clearly shewed that its contents had been effused into the cavity of the peritoneum, and it is most remarkable that he survived this accident eight days.

* Dublin Hospital Reports, vol. i.

The second case, that of Clare, is particularly deserving of attention, on account of the method of treatment successfully used to combat a peritonitis, which succeeded the operation of opening the hepatic abscess. It is important to recollect that in this case there could be no doubt of the existence of peritonitis, as unequivocal indications of the previous occurrence of this inflammation were detected on dissection, which at the same time demonstrated that the disease had been cured. We shall explain, when speaking of perforations of the intestine, the reasons which induced us to use wine and opium in this case of peritonitis.

With reference to the best mode of operating, when it is deemed advisable to open an hepatic abscess, this case appears very unfavourable to the method by caustic; it is so tedious, that before it effects our object, the abscess will probably have enlarged to a fatal extent; nor does it, as was supposed, insure the formation of adhesions. *From our own experience*, we are disposed to consider adhesions between the parietal and hepatic peritoneum, in cases of abscesses in the convexity of the liver, as of rare occurrence, a circumstance which presents a remarkable contrast with their frequency in the thoracic cavity. This consideration becomes of paramount importance, in determining the mode or practica-

bility of opening hepatic abscesses. In the case of Kelly, where this was attempted by an incision kept open, as before described, there were several superficial hepatic abscesses, but no adhesions formed except immediately below the incision. The subsidence of the pneumonia, at the time that hepatic suppuration commenced, is another feature in this case deserving of attention. We may also remark, that in no case where hepatic abscess formed, were we able to affect the system with mercury, although exhibited in full doses; an observation coinciding with Staff Surgeon Marshall's experience of suppuration of the liver, as it occurs in the East Indies.

The case of Francis Lindsay is chiefly remarkable for the state of the right lung, the lower portion of which was condensed, red, and impermeable to air, in consequence of pressure from the greatly enlarged liver. It is a most curious fact, and one not hitherto explained, that the condensation thus produced was partial, and affected only the lower portion of the lung, where it terminated by a well marked line, above which the pulmonary tissue was perfectly healthy. Here we find that pressure from below upwards, on the lung contained in the right thoracic cavity, did not affect, as might have been expected, the whole

of that organ, but merely its inferior parts, while there was no gradual transition from the compressed to the free pulmonary tissue. The same observation we have made in *incipient* pleuritic effusion, when the superficial stratum of lung was found every where compressed, to the depth of about three lines, under which the lung was perfectly permeable. In the case of Lindsay the gall bladder was found full of bile, apparently healthy, notwithstanding the almost total destruction of the liver.

On the case of Honor Fletcher, where an abscess rested on the convex surface of the liver, without engaging the substance of that organ, and opened externally, while it also perforated the diaphragm, we shall offer no comments.

It has now occurred to us twice, in diseases of the liver, to find the gall bladder filled, not with bile, but with a perfectly transparent colourless fluid, which was ropy, and in its physical properties exactly resembled the white of an egg. It contained, however, no albumen, as proved by the application of heat, nitric acid, and corrosive sublimate, and was not soluble either in hot or cold water; in fact it was pure mucus. In one of these cases there was universal jaundice, and ALL THE FLUIDS were tinged

with bile, except the mucus contained in the gall bladder, which was perfectly colourless.

In the other case, that of Kelly, it is not easily explicable, that yellow fecal matter was found in the intestines, although the gall bladder contained nothing but transparent mucus. The property which mucus possesses, of being insoluble both in hot and cold water, has not been sufficiently appreciated by physiologists. This property evidently renders it of great value in defending the internal coats of the alimentary canal from the action of fluids, which purpose it could have but imperfectly fulfilled had it been at all soluble.

In connexion with diseases of the liver, we may remark, that we had two cases of intense and long continued jaundice, in which, after the first attack of the disease, the derangement of the digestive organs subsided, the appetite returned, the bowels became regular, although the stools did not contain a particle of bile, and nutrition continued unimpaired, although the disease had in one case lasted for eight months, and in the other for two years. These facts are strongly confirmatory of the opinion advanced by *Tiedeman and Gmelin*, that the bile is to be considered rather as an excrementitious fluid, than as necessary for the process of digestion.

In jaundiced patients the tongue, lips, and gums, do not appear to be tinged yellow: if, however, pressure with the finger be made on these parts, so as to empty the superficial capillaries of their red blood, the yellow colour becomes visible.

PERITONITIS; PERFORATION OF THE INTESTINE.

Patrick Kane, aged 46, a labourer, was admitted on the 2nd of October, 1828, labouring under severe symptoms of peritonitis. About a year previously this man had contracted ague, for which he took bark, which stopped the rigors, but he never recovered his appetite, and laboured under continual thirst, with occasional soreness in the region of the stomach, and yellow slimy dejections. Twelve days before his admission he was exposed to cold, when he was attacked with shivering, followed by total anorexia, vomiting, and severe pain across the umbilical region. These symptoms were succeeded by a bilious diarrhœa, which continued for ten days, when suddenly the pain became intense, the diarrhœa ceased, and he found himself unable to pass his urine; the pain was general over the abdomen, and was particularly severe in the epigastric and umbilical regions: swelling of the abdomen appeared immediately after. The following was the report of his

state on the day of admission. The belly is swelled, tympanitic, and extremely tender; pulse 88, small and compressible; respirations hurried, with occasional moaning. He passed his urine to day, and has had some vomiting; no stool. Yesterday had occasional singultus; *leeches were applied to the abdomen; tobacco and purgative injections.*

October 2nd. Pulse somewhat fuller; pain rather less; no evacuation by stool; copious vomiting of a brown fluid; venesection to ʒxvi.; three grains of calomel every second hour.

3rd. A copious purging came on at midnight of natural coloured fæces; vomiting continued. There is no pain or tenderness of the belly; pulse imperceptible; countenance sunk; singultus. Death at noon.

DISSECTION,

Fourteen hours after death.

Belly tense and tympanitic. On opening the peritoneal cavity a quantity of fœtid air escaped, and the sac was found to contain much yellow fluid, mixed with fecal matter and flakes of lymph. The peritoneum covering the liver and abdominal parietes, presented a thin coat-

ing of false membrane, easily detached by the scalpel. The small intestines were of a livid colour, and covered in many places by coagulable lymph; the lower portion of the ileum adhered strongly to the bladder by very consistent lymph. On its being detached, we found a large perforation of the intestine corresponding to the fundus of the bladder; it was caused by a follicular ulceration occurring about twelve inches from the ilio-cæcal valve. In this part of the gut we found numerous ulcerations of the same kind, of various depths, but no other perforation.

PERITONITIS FROM PERFORATION OF THE ILEUM.

James Connolly, aged 21. This patient was in hospital labouring under continued fever of thirteen days' standing, of a rather mild type. He had epigastric tenderness, for which he was leeched. On the thirteenth day of his illness a remarkable change took place in his symptoms; the countenance became anxious; the tongue glazed and dry; and he complained of pain in the abdomen. Some serious lesion was suspected to have taken place, and leeches were ordered to the anus. In a short time purging of blood came on, which ceased towards evening, when the pain in the abdomen became violent. Next morning he had all the symptoms

of severe peritonitis, and he died on the following morning.

DISSECTION.

The peritoneal cavity contained much sero-purulent matter; a perforation of the ileum was discovered about two inches from the ileo-cœcal valve. This had been caused by the ulceration of one of the oval patches of glands. Many of the groups of muciparous glands in this situation were in various stages of ulceration, the surrounding mucous membrane being softened: the remaining viscera were healthy.

PERFORATION OF THE ILEUM. PERITONITIS.

Michael Gill, aged 30, October 29th. Three days before his admission this man was in good health, with the exception of some headach, for which he took a dose of Epsom salts. This he repeated in two days, when his headach disappeared. By each of these doses he was briskly purged.

On the following day he was attacked by violent pain in the right iliac fossa, with great prostration: he soon began to vomit, and was admitted labouring under general collapse, with pain and tenderness of the abdomen, and fecal

vomiting. On the following day he died, all pain and tenderness of the abdomen having disappeared some hours before death.

The appearances, on dissection, of this man were very similar to those in the preceding case.

PERFORATION OF THE INTESTINE.

William Mullhall, aged 36, October 31st, 1829. In this case the first symptoms of abdominal disease appeared on the seventh day of a catarrhal fever. The patient finding himself unable to pass his urine, a turpentine enema was exhibited, which opened his bowels, and enabled him to empty his bladder; pain in the belly succeeded, but it was not increased by pressure. For this symptom remedies were ordered with relief, but on that night he had a rigor. Next morning he was found labouring under great pain of the abdomen, which was tense and tympanitic: he had also violent spasms of the abdominal muscles.

He was treated with great activity by bleeding, leeching, warm water and tobacco injections, and calomel and opium. He died with the usual symptoms of ileus on the fifth day of the attack. No salivation was produced.

DISSECTION,

Ten hours after death.

The small intestines were found enormously distended. About three inches above the ileo-cœcal valve an opening large enough to admit the finger was discovered, through which fluid fæces had escaped. On the serous coat of the small intestines numerous patches of lymph were observed uniting the convolutions. The mucous membrane of the stomach was congested, but not softened; that of the ileum, above and below the perforation, was intensely red and softened. The mucous membrane of the bladder was inflamed. The remaining abdominal viscera were healthy. The other cavities were not examined.

PERITONITIS. PERFORATION OF THE ILEUM.

J. M'Kenzie, aged 32, strong habit. This man, after a severe debauch, was seized with violent pain in the bowels, which was relieved by the use of purgatives. The pain returned in the course of two days, when he was seen by Dr. Beauchamp, who found him labouring under severe pain of the belly, which was swelled, and not very tender on pressure. The pulse

was full, and the bowels obstinately costive. Turpentine enemata were administered without any alleviation, and on the following day we saw him in consultation with Dr. Beauchamp. There was no alleviation of the symptoms. He was bled, and ordered purgative medicine and injections: at this time the pulse was full and strong. Excruciating pain in the bowels, and vomiting of green matter, came on during the night, and he died on the following morning.

DISSECTION.

Thoracic viscera healthy. The peritoneal cavity was filled with sero-purulent fluid, and the intestines were glued together by soft coagulable lymph. The serous membrane was highly injected, and of a dark red colour. About twelve inches from the ileo-cœcal valve a perforation, capable of admitting a large quill, was found corresponding with a follicular ulceration, a number of which were found in its vicinity.

TUBERCLES IN THE LUNG. NUMEROUS PERFORATIONS OF THE INTESTINE. PERITONITIS.

Susan Pilkington, aged 19, of a good habit. This girl was admitted on the 17th of January, labouring under fever of catarrhal type of six

days standing. On the 22d she complained of pain in the epigastrium, which was removed by leeches. The bronchitis increased in severity, and the belly became somewhat tympanitic.

On the 2d day of February the tenderness of the epigastrium re-appeared; the respiration was greatly hurried, and the face livid; sonorous rale was audible over the whole chest; and in the infero-posterior portion of the left lung a distinct crepitating rale was heard. The epigastrium was again leeched, and on the following day she was ordered six grains of tartrate of antimony, with a copious application of leeches to the side. The tartar emetic treatment having been persevered in for some days, the symptoms of inflammation in the lung subsided, and the patient appeared to be improving. The medicine was then omitted, but the crepitating rale having returned as violently as before, it was resumed for three days. The pulse fell, the skin became cool, and hopes were entertained of her recovery; but the thoracic symptoms returned with violence, and she died on the 13th, having had some epigastric tenderness, *but no other symptom of abdominal disease.*

DISSECTION.

Brain healthy; spinal marrow not examined.

Thorax.—The pulmonary tissue of both lungs, particularly in the posterior portions, was of a beautiful vermillion colour. In both there was a general deposition of tubercle; some miliary, others in the granular state. No part of the lung was hepatized. Intense redness of the bronchial mucous membrane. The tubes filled with mucus. No adhesions of the pleura. Heart natural.

Abdomen.—An inconsiderable quantity of puriform matter was observed in the peritoneal cavity. The small intestines were glued together by soft lymph, on the removal of which four perforations were observed in the lower portion of the ileum. No feculant matter had escaped into the peritoneum. Numerous patches of the follicular glands, in a state of enlargement, were discovered. Near to the termination of the intestine these glands were ulcerated; in some the base of this ulcer was formed by the muscular, in others by the serous coat. The surrounding mucous membrane was red, soft, and pulpy. In the arch of the colon were two small ulcerations. Liver healthy. A small hydatid was found attached to the fallopian tube by means of a delicate peduncle. The aorta and iliac arteries were full of dark coloured fluid blood, but there was no staining of the internal coats.

PERFORATION OF THE COLON. PERITONITIS.

Michael Donegan, aged 12, was admitted on the 22d of September, 1829. It appeared that ten days previously to his admission he was attacked with severe pain in the abdomen, which increased, and was followed by other symptoms of enteritis. These were not combated by any proper remedies for a week, when he was first seen by Mr. Pakenham, who found him in a state of great exhaustion. Pulse 58, sharp and intermittent; countenance sunk; universal tenderness of the abdomen; frequent vomiting; diarrhœa and tenesmus: calomel and opium were exhibited, the belly was leeched, and the patient placed in a warm bath. Next day, the pulse being stronger, he was bled; the blood was not inflammatory. He was admitted on the following day.

His countenance was then collapsed, anxious and expressive of abdominal suffering; the extremities cold, and the pulse hardly perceptible. The respiration was hurried, and the abdomen swelled and exquisitely painful. Constant tenesmus.

Under all these circumstances, we determined on trying the effect of free doses of opium,

having witnessed its good effects in the case of Clare, already detailed. Large doses of the black drop were given every second hour, and mercurial frictions used over the belly. On the next day a great improvement was perceptible; the pulse was full and soft; the extremities were warm; the face had lost the hippocratic expression; he could bear pressure on the abdomen, and the tenesmus had ceased. The patient who, on the day before, was nearly insensible to external objects, expressed great relief and confidence of recovery. The same treatment was persevered in for the next twenty-four hours, and on the following day *all symptoms of peritonitis had completely subsided.* The belly felt natural; there was no tenderness; the pulse was good, and the patient declared himself well. We now unfortunately changed our plan of treatment; the opium was omitted, and a gentle saline laxative exhibited; this produced four evacuations, followed by a return of all the symptoms of abdominal inflammation, under which he speedily sunk.

DISSECTION,

Ten hours after death.

The abdomen was distended and tympanitic; the intestines were every where agglutinated to-

gether, and adherent to the parietal peritoneum, except in the left iliac fossa, where a quantity of yellow puriform matter was collected. Small quantities of the same fluid were found between several of the intestinal folds, circumscribed by the effusion of lymph; general livid redness of the serous membrane. On detaching the caput coli from the peritoneum lining the right iliac fossa, a small perforation of the gut was discovered by the escape of the contents of the intestine in a jet. The serous membrane lining the iliac fossa was found of a bluish colour, and softened for a space of three square inches: this change was also observed in the lower portion of the ileum. On opening the gastro-intestinal tube nothing remarkable was observed until within the last twelve inches of its termination, where the mucous membrane was softened, and dark coloured. The perforation of the large intestine, before mentioned, was apparently the result of an apthous ulceration, as no glandular enlargement or ulceration could be detected round it. Here, however, the mucous membrane was softened, and of a deep red colour, while the remaining portion of the intestine was healthy.

The foregoing cases of peritonitis from perforation of the intestine, having occurred within a short space of time, gave us a good opportunity of studying the disease. In most of them

the perforation was owing to an ulceration of the mucous follicles of the ileum, preceded by a process of irritation for a greater or lesser space of time. Thus we have seen the disease occurring in cases of gastric fever, and in diarrhœa, either idiopathic or induced by the use of purgative medicine; circumstances in which the mucous system is called into morbid action. Further, in all our cases, with but one exception, we have found near to the perforation, numerous marks of irritation in the muciparous system. Some of the follicles were enlarged, others softened down and forming ulcers, the bases of which were frequently formed by the serous membrane.

The symptoms in most of our cases were very similar. The sudden appearance of the peritonitic symptoms, and the rapid sinking of the powers of life, pointed out the occurrence of the perforation in the majority of cases. In fact, the peritonitis from perforation differs in this from the idiopathic, that the patient is brought in a very short time to the last stage of the disease. An extent of injury takes place in an hour, which in the common peritonitis would perhaps take days to produce.

In one case, however, Pilkington, the disease was slow and latent. Here the only evidence

of any abdominal affection was the recurrence of a slight tenderness of the epigastrium, which was in every instance removed by the application of a few leeches. We have heard of another case which occurred in this town, where, after a long fever without local symptoms, the intestine was found perforated in numerous places. In Pilkington's case, it is to be remarked, that no fecal matter escaped into the cavity of the peritoneum. The ulcerative process was evidently slow, and the abdominal exudation prevented the escape of the intestinal contents.

In the history, then, of this form of peritonitis, it is of the utmost importance to recollect, that it may take place in a very latent manner: fatal peritonitis may be going on unsuspected by the physician. This is to be particularly recollected, when there is an epidemic tendency to affections of the intestinal tube. Ulceration of the mucous follicles is more frequently observed to occur in a latent form than the peritonitis which results from it. Thus, we have known it to be found to a very great extent, and involving numerous patches of glands in the ileum of an athletic man killed by accident. During the late epidemic we only observed a single case of fever out of several thousand, where perforation took place, while during the last year this occurrence has been frequent in Dublin.

In the case of Michael Gill, the cessation of pain and tenderness was so remarkable, that we suspected the occurrence of gangrene ; this was, however, not borne out by the dissection. Sudden cessation of pain and tenderness at the close of a violent abdominal inflammation, is then not a certain indication of gangrene : it may be produced by the depressed state of sensibility, brought about by the violence and extent of the disease.

We are of opinion, and we beg to call the attention of our readers to this circumstance, that the principle of treatment in these desperate cases is not yet fully understood. Are they to be treated like cases of idiopathic peritonitis ? This is a question of the highest practical importance. We shall examine it briefly.

It appears to us that the antiphlogistic method is not so applicable as in the simpler form of this disease. In the first place, the perforation generally occurs at an advanced period of some other disease, when the constitution is less capable of supporting any loss of blood. In the second place, the disease, as we stated before, runs its course with such rapidity, that in a comparatively short space of time it brings the patient into the last stage. Now it is at this time that the physician is most frequently called on to interfere, and as far as our observation has

gone, the antiphlogistic plan only accelerates the fatal termination.

We know that nature makes an attempt to cure, and the question is, How are we to prolong life so that organization of the false membrane may take place? Is it by drawing blood after the peritonitis has come nearly to its last stage, when the powers of the nervous system are in the greatest state of depression? We apprehend not. Bleeding in peritonitis is useful in preventing the increase or extension of the disease; but in these cases the affection is *at once* extensive and severe.

These considerations make us submit that general, or even perhaps local bleeding, is a mistaken practice in this disease, and we are borne out by experience of cases somewhat similar, in recommending a different plan. In the first place, the antiphlogistic plan has failed in all our cases; this alone is an argument against it. Secondly, we know that certain cases of peritonitis, where the powers of life are greatly sunk, may recover under the exhibition of wine and opium, when blood-letting would be destructive.* Thirdly, the exhibition

* See Dr. Cusack on Puerperal Fever, Edin. Med. and Surg. Journal. See also Dr. Gooch's observations on the same subject, published since and fully confirming the statements previously advanced by Dr. Cusack.

of opium in large doses has succeeded in our hands in checking peritonitis, where the powers of the system were so much depressed as to make us avoid the antiphlogistic plan. In the case of Donegan, the use of this remedy was attended with the most singular benefit, and two cases have occurred to us where violent peritoneal inflammation succeeded to tapping for ascites in exhausted subjects; in both, although in a state apparently desperate, the disease was subdued by opium, without the use of either the lancet or leeches. *It is now nine years since this practice was introduced into the Meath Hospital.* In speaking of hepatic abscess, we have adduced another example of cure of general peritonitis, supervening on the opening of the abscess, attributable to the use of opium and wine; here the peritonitis was universal and its cure perfect, as was shewn by dissection.*

We would then recommend the use of opium *in large doses* in cases of peritonitis from perforation. If the lancet is to be used, it should be only at the very outset of the disease, and even then its utility appears to us very problematical.

About the time that the above cases of peri-

* See case of *Clare*, pag. 93

tonitis occurred, it is a singular circumstance, that many instances were observed in the female wards, in which the disease commenced with all the symptoms of mere hysteric colic. The women who suffered were attacked with violent pain in the belly, coming on in paroxysms, and during which they felt relief from strong pressure on the abdomen. At first there was no vestige of fever, but many symptoms of severe hysteria, such as sobbing, globus, pale and copious urine, &c. In several of these the disease was stopped in its course by warm baths, stupes, and opiates, combined with valerian and ether; but in others, after the symptoms had lasted for twenty-four or thirty-six hours, symptoms of fever set in, the skin became hot, the thirst increased, and the pulse accelerated, while the urine became high coloured and scanty, and the abdominal pain almost continual, and much increased by pressure. It is scarcely necessary to add, that this state required an opposite plan of treatment, viz., free bleeding, leeching, and calomel and opium, until salivation ensued. It is worthy of remark, that these cases occurred within so short a period as to present the appearance of a sort of hospital epidemic.

Before concluding this Report, we shall allude to a remarkable observation made by us on the urine of a man labouring under malig-

nant petechial fever, on the twelfth day of the disease. *The urine high coloured, and alkaline, was found to effervesce strongly on the addition of an acid,* owing, as was proved by examination, to the presence of a considerable quantity of the carbonate of ammonia. As little or no urea could be detected in this urine, there can be no doubt that its constituent principles were evolved in the form of carbonate of ammonia, whose presence could not be attributed to the decomposition of the urea after the urine had been passed, as this fluid was examined while recently passed and warm. After the crisis, by sweating, which took place on the fourteenth day, urea re-appeared in the natural quantity, while the urine was acid, and deposited the lithates in considerable quantity upon standing. This observation, evidently of great physiological importance, appears to us unique, and points out a new field of investigation.

PART II.

MISCELLANEOUS COMMUNICATIONS

ON

MEDICAL AND SURGICAL DISEASES.

PRACTICAL OBSERVATIONS

UPON

CERTAIN DISEASES

OF

THE ANUS AND RECTUM,

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Diseases of the anus and rectum have of late years much engaged the attention of the profession, as appears by the numerous publications on these subjects. Still, however, I think practitioners will allow that the diagnosis and treatment of these complaints admit of further improvement. With a wish to contribute to this desirable object, I beg leave to submit to the profession the following remarks on a few of these diseases.

ORGANIC STRICTURE OF THE RECTUM.

This disease spares neither sex nor rank; it most frequently attacks those who are about the

meridian of life; sometimes, however, it afflicts children as early as the seventh or eighth year of their age. I have not met with any instance where it attacked a person at or beyond sixty years of age.

In some few cases the patient appears to be aware of the moment of the first attack of this disease; for he tells us, that without any previous illness, the bowels at a certain period suddenly became costive; that for the purpose of relieving them he took large and repeated doses of physic for three, four, or five successive days; that at length his bowels suddenly gave way and a very severe purging took place, which having continued for a day or two, was then succeeded by those symptoms which attend the disease when fully formed.

Many patients, however, cannot give any account of the first approach of this disease; they merely state that they have been for many weeks, months, or years, subject to it; that the symptoms from the commencement were pretty much the same as those they now labour under, but perhaps not quite so severe and urgent.

When organic stricture is fully formed, (by questioning him,) we learn from the patient, that in the course of each day he has many and

sudden calls to stool; that at each of these he is obliged to strain very much, and that the straining, which is not followed by any severe pain, produces a discharge of not more than a tablespoonful of mucus, which is sometimes streaked with blood, and very rarely mixed with a small quantity of fæces; that these evacuations are generally attended with a copious discharge of wind, and that as soon as the evacuation has taken place, he feels free from pain or uneasiness: the remission however is of short duration, as he is soon again compelled to undergo the same unavailing distress. The number of these discharges are seldom less than from seven to twelve during each day and night; they do not take place at regular intervals, but generally a considerable number occur in quick succession, and then are followed by a pretty long interval of ease. The greater number of these evacuations are devoid of fæces; a feculant stool is passed perhaps once in two or three days; the fæces are then found passed in short pieces and of very reduced dimensions, not larger than a full-sized catheter, and in quantity not equal to what is passed in an ordinary evacuation by a person in health, yet after each feculent stool the patient feels much relieved.

There is not the slightest prolapsus ani with any of these evacuations.

The bladder is in some cases slightly affected; the patient then complains of a little difficulty or delay in passing his urine.

In some cases a fistulous opening forms in the nates or the perinæum, which will admit a probe to pass into the rectum; it yields a moderate quantity of healthy pus. The fistula undergoes little or no change from the time of its first appearance, even until the death of the patient. In some cases, especially in females, I have known the number of these fistulous openings to amount to twelve or twenty. The majority of cases of stricture of the rectum, however, are unattended by fistulæ.

Although this state of daily suffering proceeds with the most unvarying regularity, not only for weeks and months, but even for many years, yet the constitution of the patient does not seem to sympathize in the slightest degree for a long time; not only do his colour and appearance proclaim the enjoyment of good general health, but even the most strict examination cannot discover in any of the functions the slightest deviation from health, except those above mentioned.

After a lapse of time, however, which is very different in different cases, a peculiar paleness

of countenance and wasting of flesh announce an inroad on the constitution ; those symptoms are soon followed by night-sweats, and now the patient complains of uneasiness about the sigmoid flexure of the colon, which soon extends along the left colon.

In this stage of the disease, it too frequently happens in females, that a communication is formed between the rectum and vagina, which causes the greater part of the entire of the fæces to pass through the latter. In men, but more rarely, a similar communication is established between the rectum and bladder.

As the disease draws towards a close, the patient begins to suffer much more serious distress from the state of the rectum, for in addition to the frequent unavailing efforts to discharge the bowels, he is troubled on the slightest exertion, such as coughing, sneezing, or voiding urine, with an involuntary discharge of a thin brownish fluid of a muco-purulent nature. After some time this peculiar discharge comes away in the morning, the moment the patient rises from his bed. In the last stage of the disease, this discharge comes away unceasingly without the consciousness of the patient, and the fæces will not pass unless in a perfectly liquid state.

This aggravation of local distress is accompanied by a corresponding decline in the general health; his appetite fails, thirst becomes very urgent, emaciation proceeds rapidly, hectic fever becomes fully formed, though more marked by profuse night-sweats than by mid-day or evening exacerbations; and now the patient, extenuated to the last degree, seems to be carried off as much by the exhausted state of his constitution as by the torments of the local disease.

Sometimes in the advanced state of this disease, the patient is seized with symptoms of peritoneal inflammation, which puts a speedy termination to his sufferings, and he is suddenly carried off. In such cases, on examination after death, we discover that the process of ulceration had opened the intestine immediately above the stricture, and that through this opening a portion of fæces had passed into the cavity of the abdomen.

In some very few patients, the hectic fever seemed to have been arrested by the warmth of summer weather, but only to run the remainder of its course with unusual precipitancy on the approach of winter.

Among a considerable number of patients afflicted with this disease, I have had an oppor-

tunity in two instances only, of meeting with it in its incipient state. In both of these, the patient complained of different symptoms of irritation of the rectum, frequent stools, discharges mixed with mucus, and certain feelings of uneasiness: on examination by the finger, a thickening and slight projection of the gut was felt at a small spot on one side; this morbid alteration spread gradually round the entire of the canal, and extended along it only to a small distance; but until the morbid derangement of structure had almost entirely performed the circle of the intestine, the patient did not exhibit those symptoms which I consider as the common and inseparable attendants on stricture of the rectum. However constant in their attendance, or unvarying in their course, may be the symptoms of this disease, yet will the surgeon desire to be confirmed in his opinion by manual examination. Proceeding to make this examination, we often observe at the orifice of the anus the following appearance, which is indeed almost always present when the disease is seated near to the external sphincter, namely, at each side of the anus a small projection, which on its external surface appears as a mere elongation and thickening of the skin, but internally presents a moist surface, not exactly like the lining membrane of the gut, nor yet can we say that it is ulcerated; these two projections lie close

together below and divaricate above, presenting a resemblance to the mouth of an ewer. Whenever this external appearance exists, I feel almost certain of finding a stricture of the rectum before the finger is pushed as far as the second joint into the gut. In some cases, however, this external mark has not been present.

When the stricture is situated pretty high up, the portion of gut interposed between it and the anus is found to be in a perfectly healthy state; but when the finger arrives at the stricture, it is arrested by the narrowness of the canal, which will barely admit the point of it; if now a slight degree of force combined with a boring motion be employed, the finger may be pushed through the thickened and indurated part, and will then (as well as its benumbed condition permits it to feel) find that the gut just above the stricture is in a very healthy state. The extent of the stricture, however, is very variable; sometimes it is little more than a mere ring, but at other times, it extends along the canal as high as the finger can reach.

I have not yet met with any instance in which the intestine was strictured, only by means of bands thrown across its canal; such cases I presume must be very rare.

In a few instances the stricture has been seated so high in the gut that it could be but barely touched with the point of the finger, until the patient was desired to "force down," and then a satisfactory examination of it could be made.

Cases of this disease examined after death, present all the coats of the intestine very much thickened, except the peritoneal tunic, which when closely inspected is found to retain its healthy structure and appearance; the muscular, cellular, and mucous coats are much thickened, the latter is moreover hardened and raised into irregular ridges, or folds, but without any ulceration.*

As this disease admits of examination by the touch, and produces symptoms so unchangeable in their course, and so uniformly alike in every case, it cannot, with ordinary attention, be confounded with any other; nor can it, when present, be overlooked by the practitioner. In consequence, however, of its presenting some symptoms in common with some other diseases, both of the rectum and the adjoining organs, I

* In the fourth Fasiculus of Dr. Ballie's Morb. Anat. and plate 4, we have an excellent specimen of the disease of organic stricture of the rectum; and in the same plate, fig. 2, we have a good specimen of cancer of this intestine.

shall notice a few of the distinguishing characters between stricture of the rectum and these other affections.

1st. Cancer of the rectum has much in common with stricture, namely, the same narrowing of the canal and hardness of its walls, the frequent straining stools and discharge of bloody purulent mucus; in the cancerous affection, however, the patient has a leaden sallow cast of countenance, and suffers severely from lancinating pains darting through the hips and pelvis into the groins, and down the thighs and legs. Although cancer of the rectum in its early stage presents to the finger a feel very similar to stricture, yet by repeating the examination after an interval of a few weeks, we discover that the cancerous ulceration has, in the interval, destroyed some portion of the hardened wall of the intestine, and has thus produced a condition of the parts very different from that found in cases of stricture of the same duration.

2nd. There is a rare form of scirrhus of the uterus and vagina, in which the latter passage is almost obliterated by a cancerous thickening of its walls; this gives rise to a train of symptoms not unlike those attending stricture of the rectum: examination by the finger, however, is alone required to remove all doubts.

3rd. The same test will apply to enlarged prostrate gland, if at any time the symptoms should simulate those of stricture of the rectum.

4th. Stricture of the rectum, in its early state, may be mistaken for an ulcer in this intestine; if, however, the ulcer be low down, it will become visible by expanding the anus, or by introducing a blunt polished gorget into the bowel, with its concavity towards the diseased side of the rectum; the finger, too, if steadily pressed against it, will be received into the cavity of the ulcer, although in a hasty examination this part feels as if it were a ridge; a severe pain, too, attends the evacuation of the bowels in cases of ulcer of the rectum, while stricture is free from such.

5th. A tumor in the pelvis may compress the rectum so as to narrow and materially obstruct the canal; in such cases, however, we shall find that the projection comes from one side only, and that the coats of the intestine, at this part, retain their heathy structure and their natural softness.

And lastly. It may not be amiss to mention, that we sometimes find in patients who are free from all symptoms of morbid condition of the rectum, that the finger in ano cannot dis-

cover any canal in the gut, the entire of its calibre above the sphincter, being filled up with soft folds of the lining membrane; repeated observations, however, teach us, that such a state is not morbid, as it in no ways intercepts or disturbs the healthy functions of the intestine.

The treatment, by bougie, usually recommended in this disease, appears to be well calculated to alleviate the sufferings of the patient. I feel confident, however, that a perfect cure of the organic stricture of the rectum has not been affected by any plan of treatment hitherto employed. I have paid great attention to the use of bougies, and yet I must candidly declare that hitherto I have not been so fortunate as to have effected a permanent cure in a single instance; nor have I had the good fortune to meet with any patient whom I *knew* to have been afflicted with this disease, who had been cured by another surgeon. No man can be more ready to proclaim and boast of our control over diseases, and therefore I trust that this declaration will he received by my brethren as it is intended, viz. that it will cause them to consider the history and nature of this intractable disease, and to engage themselves earnestly in discovering some other plan of treatment which will gain the object of our anxious wishes.

I have not been contented with applying the bougie simply ; I have often made it at the same time the means of conveying various applications to the seat of disease. For this purpose I have employed bougies, with a deep groove running spirally their whole length, so that the ointment employed should not be rubbed off the instrument by the tightness of the anus and its sphincters.

I have nothing cheering to offer on the treatment of this disease; I have given the fullest and fairest trials to various internal medicines. Mercury I have employed in a great number of its preparations, and although I never yet met with a case of this disease which could be fairly traced to a venereal origin, yet I have pushed the mercury as far, and have kept up the ptyalism as long as I have done for the most obstinate forms of venereal disease, but without any permanent benefit in a single instance.

Arsenic also I have administered as far as was consistent with the safety of the patient, but without benefit: I must say the same of cicuta ; neither has iron shewn any power over this disease.

Large quantities of mucilage appear to give most relief. Blue pill, combined with a double

quantity of Dover's powder, has also occasionally afforded much temporary alleviation.

This is the only disease to which I think the title of stricture of the rectum should be applied: I would not give this name to the obstruction of the gut at the junction of the colon and rectum, nor can I admit the existence of what is termed the spasmodic stricture of the rectum. I am well aware that the greater number of modern authors not only speak confidently of spasmodic stricture of the rectum, but that even some describe various forms of this affection; thus Mr. White speaks of, but certainly does not describe: 1st. Permanent spasmodic stricture; 2nd. Simple stricture; 3rd. Spasmodic constriction of the sphincter ani; and he declares the bougie to be the principal remedy for each of these: even those authors who notice only one kind of spasmodic stricture of the rectum, agree with him in extolling the bougie as the principal remedy.

I must, however, frankly declare, that in the course of a pretty extensive practice for the last twenty years, I have not been able to discover a single case of a disease corresponding to the description of the spasmodic stricture of authors. I therefore feel a considerable share of scepticism on this point. Indeed I not only doubt the existence of any such disease, but I can recol-

lect many cases in which this suspected condition of the rectum has yielded to the ordinary means for improving the state of the stomach and bowels, especially when combined with positive assurance to the patient that no such disease had existed; by this assurance alone we can sometimes remove all his anxiety and apprehension on this subject.

With respect to the obstruction and thickening of the colon, either at its junction with the rectum, or higher up, I think that it is an affection very different in its symptoms and in its nature from that disease which I have just attempted to describe; for in cases of the former, we find that in the advanced stages of the disease, the patient cannot procure any evacuation without the aid of purgatives, nor is he, (as in stricture of the rectum,) harassed by frequent ineffectual strainings at stool; guided by his own sufferings too, he can point to the spot where the disease is seated. On examination after death we find a very considerable thickening of the coats of the intestine in the circular direction, but of short extent longitudinally. The canal at the seat of the stricture is nearly obliterated, while the intestine immediately above, is dilated into a wide pouch.

The symptoms which are stated by authors

to indicate these diseases of spasmodic stricture, or of organic stricture seated beyond the reach of the finger, will, upon investigation, be found very fallacious; even supposing all those enumerated should be found combined in the same individual:—thus, we are told, that in such cases we arrive at a knowledge of the existence of these diseases by examination with a soft bougie, by the very diminished diameter of the fæces, and by the admixture of blood or mucus with the stools.

The soft bougie, however, may, and very generally will, receive an impression from the projecting ridge of the sacrum; for it is by no means an easy matter to pass a rectum-bougie so that it shall not be arrested at this point, and consequently receive an impression from the projecting bone.

The diminished diameter of the fæces too, may be produced by any irritation in the rectum, which will cause it to act frequently, and with increased contraction; this is often experienced even in perfect health.

The admixture of mucus or blood with the fæces, is also frequently met with in other and very different affections of the bowels.

To prove the futility of these symptoms as a discriminating test, and the danger of being misled by them, I shall briefly state the outlines of one case only.

Mr. ——, æt. ann. 36, who had lived rather fully and freely, applied to me six or seven years ago under the following circumstances: he said that he had been, for the last two years, affected with stricture of the rectum; that in the preceding year he had an attack of dysentery, and that since that time he found the stricture worse; the diameter of the fæces diminished, calls to stool more frequent, and seldom passing without an admixture of blood and purulent mucus; he was losing flesh rapidly, his appetite and rest were very indifferent, and his mind was miserable. Having examined the rectum by the finger, I expressed to him my hopes that he was not affected with such an intractable malady, by which I very nearly forfeited his confidence; for he told me that he had applied to a very eminent physician in the north of England, and then to another in London, both of whom assured him of the existence of this disease; and lastly, he had been under the care of the late Mr. White of Bath, who furnished him with the bougies he was then using, and immediately introducing one, he shewed me the mark which the stricture impressed on it. My most

urgent remonstrance could at this time only obtain from him a promise that he would not use the bougie as frequently, or for as long a period as usual. By small doses of blue pill, combined with compound powder of ipecacuanha and an enema of olei oliv. cum subacet. litharg. liquor., the irritation of the bowels was mitigated in the course of eight or ten days. Availing myself of this favourable change, I again urged him to lay aside the bougie, and with some difficulty obtained a truce for ten days; within this period it fortunately happened that he passed one consistent motion, in which the fæces were of a large diameter: after this I had but little trouble in prevailing on my patient to lay aside altogether the use of the bougie. By persevering in the internal use of mild bitters and bark, and injecting every night an enema, consisting of ol. oliv. and unguent. supernitrat. hydrargyr. into the rectum, his disease was finally cured, and since that time his bowels, though sometimes deranged by ordinary complaints, have never suffered from a return of the former affection, and he has enjoyed very good health.

When we consider the irritable state of this patient's bowels, the wasting of his flesh, and the wretchedness of his mind, we may, I think, reasonably believe that a further perseverance in the use of the bougie would have rendered

his disease eventually fatal; yet here were present all those symptoms which are said to indicate stricture high up in the rectum: the event has proved that no such disease did exist. And here let it be remembered, that serious mischief has occasionally been committed by rude attempts to dilate a *supposed* stricture at the top of the rectum or termination of the colon, for I have known two cases where peritoneal inflammation and death speedily ensued; and I have heard, on the best authority, of two similar instances.

Spasmodic stricture of the sphincter ani must, I believe, be a very rare disease: Dr. Baillie has given one case of it in 5th vol. Trans. College of Physicians, and has, with his usual perspicuity, pointed out its characteristic symptoms. The only case which I had ever met with had been treated as stricture of the rectum; it was in a young man of rank, who applied to me for relief from a stricture of the rectum: he told me that an eminent surgeon in a provincial town, another in Dublin, and another in London, had all assured him that such was his disease. He informed me that during the two last years he had suffered from it for two or three months at a time, and then he enjoyed immunity from it for four or five months. By minute inquiry into the symptoms, and by examination

of the rectum, I satisfied myself that this disease was only a spasmodic condition of the sphincter. But in order to convince my patient that his fears of stricture of the rectum were unfounded, I passed a wooden globe, three and a half inches in circumference, mounted on a stalk of whalebone, ten inches up the rectum, without having met with any obstruction.

VASCULAR TUMORS OF THE RECTUM.

This disease is readily known by attention to the following symptoms. Whenever the bowels are evacuated, the patient feels a protrusion through the anus: the protruded part is observed to consist of a greater or smaller number of tumors of different sizes, soft and spongy to the feel, of a purplish colour, with a number of minute, yet very distinct, vessels on the surface of each. It will be absolutely necessary for the surgeon, in suspected cases, to examine the parts when protruded; for if, relying upon the accuracy of his touch, he merely examines by the finger introduced into the rectum, these tumors will, in all probability, elude his scrutiny.

In the early stage of the disease, the protruded parts retire spontaneously, but in the advanced stages they require to be replaced by the

hand. The evacuation of the bowels is followed by pain, which in that advanced stage of the disease does not cease for two or three hours. In some instances the patient informs us that the pain, which is pretty severe at the time of the evacuation, becomes almost insupportable in the course of half an hour or an hour after, and generally continus so for five or six hours. These last are cases of vascular tumors, complicated with fissure of the rectum, the very severe pain being caused by the latter disease.

There are some cases of vascular tumors in which the patient suffers, not so much from pain as from loss of blood at each evacuation ; this I have known to reduce some of these unhappy sufferers to a state of exsanguine exhaustion. In this exhausted state of the patient we find the sphincter ani so very wide, that it can easily admit all the fingers conjoined, yet this, in a few days after the operation, will resume its natural state of contraction. If we watch this disease for some months together, we shall find, that when the vascular tumors are combined with fissure, there are periods of exacerbation during which the patient, after an evacuation, writhes in severe agony, and cannot allow the parts to be returned : at this time the tumors feel hard and seem to be inflamed.

I had an opportunity of examining the structure of these tumors in a patient who died of another disease. On slitting up the rectum I saw three blood-vessels, each as large as a crow quill, running for some way down the intestine, and then dividing into a number of branches; these vessels ramified very profusely, and each seemed, by interweaving of its branches, to form one of these tumors. The trunks and branches were covered only by the lining membrane of the intestine. This examination shews us how inapplicable to this disease are the terms, "Varicose tumors," "Hemorrhoidal excrescences."

The opinions of the profession are divided as to the best mode of removing these tumors, some preferring the ligature, others excision: I am decidedly in favour of the latter, for this reason, that TETANUS, the consequence which is to be dreaded in the former mode of proceeding, cannot by any means be foreseen or guarded against; whereas hemorrhage, which alone is to be feared in the operation by excision, may be prevented, and can most certainly be suppressed.

The following mode of operating I have found to be uniformly and permanently successful; and it is considerably less severe than that generally recommended.

The tumors having been made to protrude, by means of a purgative injection, I direct my assistant to pass a hook or common tenaculum through one or two of the largest, while I seize another lengthwise with a polypus-forceps, then drawing the tumor a little towards the axis of the gut, with a large pair of scissars passed behind the forceps, I cut off all that portion which is engaged between its blades : I then proceed in the same manner to remove those tumors which the assistant holds transfixed by the hook. By fastening and drawing out the tumor with the forceps, we much facilitate its removal by the scissars. Proceeding in this way I guard against these tumors being drawn up within the sphincter as soon as the first had been removed. I do not think that any case will require the removal of more than three of these tumors, and not unfrequently the cure will be ensured by cutting off only two of them. When the operation is finished, the protruded parts generally retire within the sphincter : should any part remain out, it must be completely pushed in with the finger.

In order to guard against the danger of hemorrhage, I take care not to prolong my incision higher on the bowel than what I conceive will, when replaced, lie within the circle of the sphincter ; for, if we cut the gut higher up, this

part, when returned, may bleed freely from not having any surface closely opposed to it. Besides we know that by cutting higher up we are in danger of cutting the trunk of the vessel, instead of confining our incision to the tumour, which is composed solely by the convolutions of its very minute branches.

I have said that if hemorrhage should follow this operation, it can most certainly be arrested. This I have done satisfactorily in a case where the patient had suffered for nearly twelve hours by bleeding into the gut, from which it was at intervals shot forth *involuntarily*, with forcing and straining: many and unavailing were the methods employed by three or four surgeons and myself, until at length I bethought me of Petit's method of stopping an hemorrhage from the rectum. In this case I made use of sponge instead of the lint recommended by that author.

I should be afraid to adopt Mr. Hey's method of cutting away all the protruding tumours, together with the skin at the verge of the anus, lest the patient should afterwards experience that distress which a too contracted state of this outlet must occasion; for in one case where, for the purpose of extirpating warts, a ring of skin at the verge of the anus had been cut away

along with these excrescences, the condition of the patient was rendered truly miserable.

It will be satisfactory to timid patients to learn, that this disease of vascular tumors may be rendered very mild, if not ultimately cured, without the necessity of resorting to an operation. By causing the patient to inject four or five ounces of an injection, consisting of two grains of sulphate of zinc to each ounce of water, every night going to bed, and making him retain it during the night, I have known the disease so much alleviated, that patients have flattered themselves they had obtained a perfect cure. I have known some of them, though not living in the most regular manner, yet enabled to enjoy all the sports of the field without inconvenience. I fancy that this plan of treatment has succeeded best when begun immediately after one of the painful fits of the disease. I have known many of these patients much benefitted by smearing, after each evacuation, the protruded parts with a liniment of ol. oliv. ʒii. and plumbi subacetat. liquor. ʒi.

ULCER OF THE RECTUM.

We sometimes find within the rectum, at a short distance above the anus, an ulcer unconnected with any other disease. In such cases

the patient complains that he observes his linen stained with a purulent discharge, which often flows when he is not at stool; on examination this will prove different from healthy pus, frequently containing an admixture of thin bloody fluid; at times the quantity of discharge is much lessened, and then the sufferings of the patient are aggravated, but on the flowing off of a larger quantity he experiences great relief; he suffers sharp pain on going to stool, and this continues for an hour or two. On examination, the finger soon discovers the seat of the disease, which at first feels raised and rather rough, but by pressing the finger firmly on this spot, the point sinks into a small hollow cup of an ulcer, the edges of which are found in some degree hardened. We may obtain a satisfactory view of the ulcer, by passing upon the finger a blunt polished gorget, the cavity of which is to look towards the seat of the disease; then by everting the anus as much as we can, we shall obtain a full view of the ulcer by the light reflected from the gorget.

The unhealthy nature of the discharge, the degree of pain and hardness of the edges of this ulcer, might make us apprehend some carcinomatous affection; but in any doubtful case, by temporizing and watching the course of the disease for a few weeks, we shall have all doubts re-

moved; for if it be cancerous, the ulcer will in this period, have changed in form and extended in size; besides, on strict examination, whilst the point of the finger lies in the cup of the ulcer, it will be found that the hardness is confined to the edges, whilst the bottom of the ulcer is soft.

The remedy for this disease is to introduce into the rectum a convex-edged scalpel, and make an incision through the entire length of the ulcer, continuing it through the sphincter, and dividing the verge of the anus; as soon as this wound has got into a state of suppuration, we should dress it and the ulcer, with some stimulating ointment introduced on a dossil of lint. The cure goes on without interruption, although it is rather tedious and slow of healing. I need hardly add, that the final cicatrization will be promoted by the occasional application of nitrate of silver.

OBSERVATIONS

ON THE

MUCOUS MEMBRANE OF THE RECTUM,

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The structure and arrangement of the mucous membrane of the rectum ought to be perfectly understood, with a view towards the accurate diagnosis, or successful treatment of its diseases; and particularly, in order to be able to introduce instruments with dexterity along its canal. It is a subject the consideration of which has certainly not been neglected, but nevertheless there is one material circumstance connected with the disposition of the membrane, which either is not generally known, or is not weighed as its importance deserves. In the natural state, the tube of the gut does not form, as is usually conceived, one smooth uninterrupted passage, devoid of any obstacles that might impede the entrance of bougies: it is, on the contrary, made uneven in several places by certain valvular projections

of its internal membrane, which standing across the passage, must frequently render the introduction of such instruments a matter of considerable difficulty. (See pl. 3. fig. 1st.) Cloquet, and some other anatomical writers, have made a cursory allusion to this condition of the membrane ; but all the authors, who have treated of diseases of the rectum, appear to have wholly overlooked it.

My attention was first called to these valves by preparations which I made to demonstrate the relative situation of the pelvic viscera, and to display the natural state of their cavities ; and from the manner in which the making of these preparations was conducted, viz., by distending and hardening all the parts with spirit previously to being cut open, the valvular condition above alluded to was most satisfactorily exhibited.*

The valves exist equally in the young and in the aged, in the male and in the female ; but in different individuals there will be found some

* See Views of the Pelvis, shewing the natural size, form, and relations of the bladder, urethra, rectum, uterus, &c., in the infant and in the adult, taken from preparations made for the Museum of the Royal College of Surgeons in Ireland, by J. Houston, &c. The valves in the interior of the rectum are, however, in these views, but very partially shewn, the artist having, in fact, nearly omitted their representation.

varieties as to their number and position. Three is the average number, though sometimes four, and sometimes only two are present in a marked degree. The position of the largest and most regular valve is about three inches from the anus, opposite to the base of the bladder. The fold of next most frequent existence is placed at the upper end of the rectum. The third in order occupies a position about midway between these, and the fourth, or that most rarely present, is attached to the side of the gut, about one inch above the anus.

In addition to these valves, of tolerably regular occurrence, there are frequently several intermediate smaller ones, but which, from their trifling projection and want of regularity in their situation, merit comparatively little notice.

The form of the valves is semilunar; their convex borders are fixed to the sides of the rectum, occupying in their attachments from one-third to one-half of the circumference of the gut. Their surfaces are sometimes horizontal, but more usually they have a slightly oblique aspect, and their concave floating margins, which are defined and sharp, are generally directed a little upwards. The breadth of the valves about their middle varies, from a half to three quarters of an inch and upwards, in the distended state of

the gut. Their angles become narrow, and disappear gradually in the neighbouring membrane. Their structure consists of a duplicature of the mucous membrane, enclosing between its laminæ some cellular tissue, with a few circular muscular fibres.

The relative position of the valves, with respect to each other, deserves attention. That situated opposite to the base of the bladder, most commonly projects from the anterior wall of the gut; the valve next above from the left, and the uppermost from the right wall: that near the anus, which is of least frequent occurrence, occupies a place when present towards the left and posterior wall. Many deviations from these stated points of attachment for the folds will be found to occur, but the arrangement is nevertheless always such, as to form by their being placed successively on different sides of the gut, a sort of spiral tract down its cavity.

In regard of the sacculated form which the rectum acquires by the presence of these valves, the gut resembles somewhat the colon in the condition of its interior; but in the peculiar spiral arrangement of the valves, it bears more an analogy to the large intestine of some of the lower animals, in which, as for example the cæcum of the rabbit, the large intestine of the

serpent and dog-fish, a continuous spiral membrane traverses the cavity from end to end, and gives to the alimentary matters a protracted winding course towards the anus.

The only method by which the condition of these valves in the distended state of the rectum can be displayed, is that above noticed, of filling and hardening the gut with spirit previous to being disturbed from its lateral connexions. By the ordinary procedure of distending it after removal from the body, the valves are made to disappear. Their presence may likewise be ascertained in the empty state, if looked for soon after death, and before the tonic contraction of the gut has subsided. They will then be found to overlap each other so effectually, as to require considerable manœuvre in conducting a bougie, or the finger, along the cavity of the intestine.

Mr. Colles, in an excellent Paper on Diseases of the Rectum, to be found in another part of this volume, makes some observations corroborating in the fullest manner the fact which I wish to establish. He says that the finger, in many instances, cannot be insinuated up the rectum, that the gut imparts to it the feel as if its cavity were obliterated.

The experience of Mr. Crampton goes like-

wise to establish, not only the existence of such valves in the rectum, but also their spiral arrangement. He uses a bougie bent with a couple of light spiral turns, (fig. 2d.) and in the introduction, moves it about gently between his thumb and fingers. Mr. Crampton was led to curve the instrument after this fashion, from having noticed that of itself it assumed such a form when allowed to become soft, by remaining some time up the gut, and he practises the spiral movement while introducing it from an observation, that during its return down the canal, after being thus modelled, it is disposed, if handled loosely, to assume that course. All these facts, derived from observations both on the dead and living body, leave no doubt as to the existence of the valvular arrangement in the interior of the rectum, and point to the advantage which may be derived in practice from a proper attention to them.

Considered physiologically, this conformation of the gut is such as might naturally have been expected to exist, as necessary to support the weight of fecal matter, and prevent its urging towards the anus, where its presence always excites a sensation demanding its discharge. But considered in reference to disease, the valves or shelves thrown across the cavity of the intestine are fraught with still more im-

portance. They may possibly become the most frequent seat of that morbid alteration of the inner membrane, termed stricture. I have not, however, examined the subject with a view towards determining this question ; but there are several facts which give probability to the conjecture. In the first place this disease is generally confined at its commencement to a portion of the circumference of the gut ; and secondly, the seats of this occurrence correspond very much to the places where these valves are most often found, viz., near the orifice, about three inches up, or at the top of the rectum. There is still another more weighty reason why the surgeon should bear in mind the existence of these folds, that he may not mistake them for strictures in the gut, a mistake which it is to be feared has often happened to those who have reported such numerous cases of this disease, and which, by leading them to the frequent practice of bougies, may have brought on the very malady which their instruments were intended to remove.

EXPLANATION OF PLATE No. III.

Fig. 1st.

A. A. The rectum, shewing the valvular projections of the inner membrane. The inferior valve, which is about one inch above the anus, is remarkably developed.
B. B. The uterus and vagina, indicated by a probe.
C. C. The vesica urinaria, and urethra.
D. The symphisis pubis.
E. E. The os sacrum.

This figure, which is of the full size, was copied from a preparation made since the above account was written, and some trifling deviation may be noticed in the valves from the position there assigned to them, but nevertheless their number, form, and general arrangement, correspond so much with that account as to afford ample corroboration of its accuracy.

The subject of the plate was a young female, about ten years of age. The viscera were first filled and hardened with spirit; the left half of each was then sliced off, and their cavities thereby exposed. In making the section of the rectum, a portion was necessarily cut out of the valves belonging to the side removed, and the portions of them left behind, as delineated in the plate, convey an accurate idea of their thickness, breadth, and structure.

Fig. 2d.

A representation of the spiral bougie (reduced in size) used by Mr. Crampton in examinations of the rectum.

A CASE OF ANEURISM

OF THE

ABDOMINAL AORTA,

WITH THE

DISSECTION AND OBSERVATIONS,

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It has been well said by Martinet,* that "diagnosis is the most important part of pathology, for it not only enables the physician to ascertain the nature of diseases, but also the treatment best adapted for their relief." It embraces the solution of that great question, which is presented to every man who investigates disease, and which it is his first duty to endeavour to solve; "What is the organ affected, and what is the nature of its derangement?" A strict inquiry into the symptoms, and an examination of the functions of the different organs will, for the most part, lead to a detection of any derangement in their performance, and hence to the

* Manuel de Pathologie.

organ affected. But there are exceptions to this rule, among which may be ranked aneurisms in the thorax and abdomen.

To discover the existence of this disease in the incipient state, or even after it may have attained to a considerable and fatal extent, has ever been admitted to be a matter of great difficulty, and we have the testimony of many celebrated writers on the subject. Morgagni * relates some cases in which the disease was mistaken, even by himself and others, in which, on examination after death, so little had the previous symptoms indicated the true nature of the disease, that it was totally overlooked, and the tumors were called by different names. Hodgson † remarks, "aneurisms in the thorax or abdomen, frequently prove fatal before a knowledge of their existence is confirmed by that evidence which the appearance of the tumor externally generally affords." Richerand ‡ says, "It is only when the disease becomes accessible to the senses of the sight and touch, that internal aneurisms afford signs that can be relied on. Up to that moment any that exist are but equivocal. Frequently, in opening dead bodies, dilatations are discovered, of the existence

* Epist. xl. sec. 27.

† Diseases of the Arteries and Veins, p. 88.

‡ Die des Sciences Medicales art. Aneurisme.

of which there had been nothing during life to cause a suspicion, and frequently such tumors burst before they have attained a size sufficient to destroy the parietes of the cavity in which they exist."

Other authorities might be quoted, if necessary, to prove what is now universally admitted. This difficulty in the diagnosis occurs chiefly when the disease is situated in the descending aorta. If it springs from the arch of this artery there are some circumstances that point it out more clearly,* such as deranged circulation and pulsation at the wrist, cough, sense of suffocation, difficulty of swallowing, and often a distinct pulsation perceived by the patient; but when it is at a greater distance from the heart, the interruption to the circulation is not so manifest, in many it does not occur, and even if present it is not discoverable at the part usually examined, the wrist; while the other symptoms caused by its pressure on the organs and its vicinity, are at the same time very equivocal, being indicative of many diseases in these organs, as well as of aneurism of a neighbouring artery. While this difficulty in the discovery of so fatal a disease exists, it is the duty of every man, to whom an opportunity occurs of witnessing it, to commu-

* Hodgson, p. 92. Burn's Diseases of Heart.

nicate the observations he may have made, in the hope that by an accumulation of facts, inferences may be drawn tending to elucidate this obscure but important subject, and to assist future observers in its diagnosis. Under this impression I have drawn up the following case, from very full notes taken during the progress of the disease, leaving, as unimportant, the details of the treatment, as it will appear that the true nature of the malady was not suspected during life; but I will endeavour to draw as accurate a picture as the varying and contradictory symptoms of the case will admit of. This case is valuable, inasmuch as the patient was under my inspection from the earliest stage of the disease; and having from peculiar circumstances watched the progress of it with great anxiety, no symptom or change escaped observation.

J. M. Esq., aged 33 years, of robust frame, and regular and temperate habits of life, was seized in August, 1827, with dull pain in the loins, which, from his being subject to rheumatic affections, and having then recently been exposed to chill, and consequently heavy cold, was thought to be lumbago. I saw him about a fortnight after the commencement of the attack, and he then complained of a fixed dull pain in the back, not

situated in the external muscles, but occupying a deeper ituation, as he described it, as if it were between the bowels and the spine. The smallest sudden change of position produced acute pain shooting from the loins towards the spine; and although in the first stage of the illness, he was comparatively at ease when standing or walking, yet soon the making a false step, or any irregular movement, even stooping to tie his shoe, produced so severe suffering that he could no longer leave the house. This ailment, confined at first to the loins, soon extended gradually round the belly: the bowels were kept open, yet the belly swelled much, even to tympany, but there was no increase of pain on pressure, nor any tumour perceptible then, nor afterwards, when the distention was reduced. He was very flatulent, and whenever he lay for any time the pain increased, and was commonly relieved on standing up, by discharge of wind upwards. Pulse natural; appetite good, but pain usually supervened on eating: urine natural, a slight suppression for a few days, which was removed by sweet spirit of nitre. At this time Dr. Cheyne saw him frequently with me. Antimonials, mercurials, naracotics, purgatives, cupping, and blistering to the loins, &c., &c., were all tried without decided effect. After some slight improvement he went in September to Cheltenham; there he saw Dr.

Boisragon. In the course of three weeks, there was an almost total remission of pain, and an amendment in strength and spirits. In another week, however, pain returned, and uneasiness of bowels at night, which constantly compelled him to rise and walk about, when change of position and discharge of wind upwards commonly gave relief. Under Dr. Boisragon's directions, he used the Cheltenham waters for about six weeks, with occasional doses of blue pill and rhubarb. He used the warm bath, friction with the flesh brush, and entirely changed his manner of living, eating animal food three or four times a day, and drinking wine, or brandy, and water. In November he returned to Dublin free from pain, and improved in appearance; but within a week the pain returned in both sides with increased violence: it was now no longer a shock caused by change of position, but a most severe spasmodic twisting and pulling of the whole tract of the intestines, but more particularly in the region of the colon at both sides. This would last to a degree of torture, for some hours at a time, and then subside; some feeling of it constantly recurred after meals now and then with violence, so great as to compel him to leave the table. He was now likewise distressed by a dull pain, apparently distinct from the spasm of the sides through the whole abdomen, as if there was a weight that

pulled it internally from every part. This uneasiness was always worse in bed, and continued to increase the longer he lay, even when he went to bed free from it, he was awakened in two or three hours and compelled to rise. His sleep was thus broken ; he rarely enjoyed it for above two hours at a time, and sometimes did not close his eyes ; frequently he dressed himself and walked about, or sat and read for hours, which relieved the pain, and enabled him to rest in bed for an hour or two before its return. It appeared to him as if the pain came on as the matter descended in the bowels, and it was always relieved by evacuation : this led him to have recourse to injections, which he used freely. He also thought that heat was concerned in the production of pain, for although he could not remain in bed, it always relieved him to lie down on a sofa or chairs in the day time ; and when at a subsequent period he tried the hot bath, this pain of bowels invariably came on, and equally so whether he lay or sat upright in it. In November Dr. Graves saw him : a course of turpentine injections and blistering appeared to relieve all the symptoms at this time, but after about a month they recurred with severity, and seemed insensible to the same treatment. New remedies were resorted to with temporary intermissions of the pain : all seemed at first to give relief, and then to lose their effect. At this pe-

riod he lived pretty much as formerly, eating meat, but not any vegetables, and drinking wine. He continued during the winter much in the same state, with occasional violent attacks of pain and spasm, and often with an intermission of days between them. He tried the effect of opiate injections, which always produced immediate ease, but the constipation of the bowels which followed their use, and the distress produced thereby, was so great that he was obliged to discontinue them. He was not at any time, however, incapacitated from attending to business in court. At one period, during the term, the effect of speaking in an important cause was very striking; he had been suffering greatly during the whole day, and could, with difficulty remain in court; but when he rose to address the bench all pain fled, and he continued perfectly well while speaking, and during the following evening. From the end of April, 1828, the distressing pain of bowels became worse, and from the harassing effects of it, and the total loss of rest, his strength greatly declined, and his appetite for the first time became bad; his pulse however continued good. It was at this period that he resumed the use of warm baths, and experienced the unpleasant increase of pain from them, which I have already mentioned. In June he began to use cold baths and bark; the latter was soon discontinued, as he thought his sto-

mach unpleasantly affected by it. The baths did not cause any redness or glow of skin, but gave a feeling of increased strength, and materially affected the pain in the sides: when this was sharpest the plunge into the bath at once relieved it, sometimes for hours, though often but for half an hour or less. Mr. Colles saw him often during this month. He now commenced horse exercise and riding in a gig. In the early part of July the pain, which had been latterly most felt in the left side, changed for a time to the right iliac region, and rigors came on towards evening, on one occasion with great severity after exposure to cold, and lasting for about six hours. He now went on circuit, and continued away during the last three weeks of July and the first week of August, and travelled in a gig for the sake of air and exercise. He always found the heat of court oppressive, producing weakness and return of pain: one day, in particular, of great heat and labour, was followed by two days of severe pain and spasm in the sides, and great consequent derangement of the bowels; for I should mention that the spasm, when it became severe, appeared to prevent the passage through the intestines, and impeded the operation of medicine, which derangement in its turn appeared to produce and increase the pain. Throughout the whole of the illness there was incessant occasion for keeping the bowels

well freed; the least accumulation, for above five or six hours, bringing on the pain, or perhaps the spasm in the sides. In about a fortnight after setting out on circuit, he was seized at night, without any cause that he could trace, with violent spasm in the left side, attended with symptoms different from former attacks. It was now a continued dull pain in the left loin and hip, and down the thigh of that side, with frequent violent spasms shooting forward in a strait direction to the belly: these spasms occurred on change of posture, or any movement however slight; they felt to him more muscular than former pains, and proceeding from a point nearer to the surface: when they seized him he could feel the bowels in front, directly opposite, hard, and as it were in a state of twisting and contortion. This state continued without intermission for two days, and then gradually ceased: during the time of the pain he was very chilly, and found it necessary to have fire, although the days were fine. After an interval of eight days he had another attack precisely similar and more severe; each time the bowels were much constipated, yielding slowly and with difficulty to medicine. Notwithstanding these exhausting attacks, he found himself at the end of circuit stronger than when he left home, and more at ease; his appetite was improved, and his bowels were more easily freed. The pain in the right side now

wholly subsided, and the general uneasiness of bowels diminished; but he was affected by cramps in the feet and legs at night, and he had frequently a convulsive twitching of the legs, particularly when in bed or lying down, coming on with any return of the pain in side or uneasiness of bowels. He found the bowels at this period more obedient to medicine, and freed with a less quantity than usual, for latterly the natural action seemed quite gone, a great deal of medicine being required to produce evacuation: bleeding from piles, to which he was habitually subject, and at times had been very considerable, now ceased. He remained in Dublin from the 7th until the latter end of August, and during that period he continued to suffer much in the same manner; the colicky pains recurring from time to time with great violence, and his sleep being constantly broken. It appeared to me at this time, and I mentioned the circumstance to himself and some of his friends, that in its nature and situation the pain in the bowels very much resembled that produced in the lead colic; and in looking over the volume on Diseases of the Abdomen, by M. Andral, I found a description of a disease resembling the colica pictonum, but not caused by lead, which he states to be rare, and not of long continuance. It is but fair to state, that no definite opinion of the disease had been formed

by us at this period; the symptoms were so variable, and the indications of organic disease so obscure, that notwithstanding the able and valuable medical and surgical assistance which we had called to our aid, no satisfactory diagnosis could be given. In the end of August, finding that no amendment took place, I urged him to go to London, and if possible to proceed to Paris, where I was most anxious he should be seen by M. Andral. After waiting some days for the subsidence of an attack of pain, he set out, and reached London without difficulty. He remained at Woolwich for a fortnight, and there he had the benefit of the advice of Mr. Fitzpatrick. Upon a suspicion of the existence of stricture in the rectum, he proposed to have Mr. Brodie's opinion on the case, whose examination placed the healthy condition of the gut beyond a doubt: I may observe that I had previously been led to investigate this organ on a similar suspicion, with the same result. Our patient improved at Woolwich, and determined on going to Paris, which city he reached about the middle of September. He was encouraged to take this step by the presence of Dr. Graves, in Paris at that time, who had seen him in Dublin, and was acquainted with M. Andral; they, together with Dr. Townsend, who was there likewise, had two or three meetings on the case, in each of which the most minute exami-

nation of the abdomen, and of the history of the symptoms, was made by M. Andral, who, after mature deliberation, gave his opinion, that the symptoms complained of were the result "d'une neurose intestinale." He said he found nothing that indicated organic disease, and that there was a great analogy between the sufferings of Mr. M. and those complained of by persons under the influence of lead. During his stay in Paris, which continued until early in October, (about three weeks,) he improved in every respect; the pains almost entirely subsided, his appetite, spirits, and flesh returned, he ate and drank without restraint, and his nights were passed in sound, refreshing sleep; his letters at that time were most cheering, and every thing promised a perfect recovery. He continued well through the journey back to England, almost up to the very moment of landing at Dover, when suddenly, while walking the deck of the packet with Dr. Townsend, who accompanied him, a most violent pain shot through the back and bowels, the effect of which was instantaneously to throw the whole of the belly into a state of spasm and torture, and in this state he continued for several hours. By the use of opiates he was so far recovered as to be able to come down to dinner, and the paroxysm subsided; this was the first he had had, for a month or more. He reached London the following

day, and on the 7th of October he saw Dr. Wilson Philip, under whose care he remained three weeks.* He left London on the 25th of October, and reached Dublin in a few days. On his arrival I saw him, and found him much improved in appearance, and he described all his symptoms as greatly alleviated. Soon after his return to Ireland the law term began, and he resumed his labours with confidence and spirit. In a few days, however, the hopes of recovery were blighted by a fresh attack of pain and spasm, and now for the first time he complained of the pain extending to the chest ; this became so severe the first night of its appearance, that he put a blister over the lower part of the sternum, to which place the pain was then confined ; the following day it moved to the right side, and occupied exactly the region of the liver : when desired to point out the seat of suffering, he traced the boundaries of the liver with accuracy, and complained at the same time of severe pain in the right scapula. Dr. Townsend visited him constantly during this period, in conjunction with Dr. Graves and myself. He was now con-

* Doctor Philip pronounced that the complaint arose from indigestion, and that the pain and spasms of the intestines were produced by the disengagement of gas, from the ill digested matter retained in them. He prescribed with a view to correct this state, and the patient appeared to improve daily.

fined entirely to his room, but could not lie down in bed; he either sat propped up with pillows, or in a high sloping backed chair; any attempt at the horizontal posture brought on increase of suffering. The pulse continued steady at 80, notwithstanding the severity of this attack, but blood drawn from his arm exhibited the inflammatory crust. In a week he was able to leave his room, and the pain in the right side gradually subsided. He had resumed the amusement of singing on his return to Ireland, in which art he was an admired proficient, and his evenings were now usually enlivened by this recreation: I mention this to shew how little the respiratory function was interrupted. In the course of a fortnight he was so far recovered as to be able to use exercise on horseback, which he continued until early in December. He now experienced a fresh accession of pain, for although comparatively well in the interval, he had frequent returns of it since the last severe fit: it did not now occupy the region of the liver as before, but extended across the chest, and round the sides to the back, following the attachments of the diaphragm. The pain was of a darting spasmodic character, but the respiration remained natural: his sufferings became very severe at this time, every part of the abdomen was in a state of torture and spasm, particularly the left iliac region; the pain seemed to

shoot through the bone at this place, and the muscles of the back, extending up to the scapula, commenced to feel uneasiness ; a cup of strong coffee frequently procured relief at this period. He was now obliged to have recourse to narcotics pretty freely ; neither belladonna, stramonium, nor hyoscyamus, afforded any alleviation, the preparations of opium alone were of use. On the 3rd of January, 1829, he commenced to take the carbonate of iron, for although it had been tried in an early stage of the disease, without benefit, we wished to exhibit it again ; this, with the use of the tepid shower bath, was persevered in for some days, and not finding any advantage, from them, they were laid aside. On the 10th, the sulphate of quinine in large doses was ordered, this appeared to produce great benefit, the pains were mitigated, and the nights improved so much as to enable him to omit an opiate, which for some time he had been obliged to take on going to bed. On the 13th he felt so well in all respects, and so free from pain, that he ordered his gig and rode out in it for two hours ; the day was cold, but he returned in a glow of warmth, and passed the evening in great comfort ; he sang one of the most difficult songs this evening with perfect strength of voice ; his night was good, and the following day he took a similar airing with the same results. On the 15th, he awoke with pain in the left side, corres-

ponding in situation and extent with the former pain in the right side; this rapidly increased in severity, and before the evening amounted to intense suffering; his pulse *now for the first time* varied from a state indicative of perfect health, it arose to 100 and never fell again. He was bled largely from the arm and cupped on the side without any relief. The following day the pain still continued in the side, and extended up the back and down into the left ileum; severe spasms of the muscles of the back and belly, with pain darting from the pit of the stomach to the spine, now set in; these continued with great violence, subject to occasional intermissions, and yielding to a certain extent to opiates. On the 17th, it was thought advisable to salivate him with mercury, and the large doses of opium were suspended, but no language could describe the agony he suffered during that day. The spasms of the back and side came on with such violence as frequently to force him to cry out, and leaping from the chair in which he sat, to throw himself flat on his face on the bed, in which posture he obtained a partial and temporary relief; his screams at this time, although he was naturally a strong-minded man, were heard from top to bottom of his house: opiates were again had recourse to, in large doses, with relief, and from that time the quantity taken was enormous: his flesh now rapidly declined, and his strength

diminished. He was unable to leave his bed after the 18th, but he was obliged to preserve the sitting posture from the great increase of pain in the back and side whenever he attempted to lie down. Dr. Cheyne now saw him, and continued in attendance with Dr. Graves and myself until his death. The pain continued with much severity until the last few days of this month, when he had a temporary remission. On the 1st of February, having passed a good night with sleep, he became uneasy at about seven in the morning, and on taking a drink he was suddenly seized with violent pain in the left groin, and the crest of the left ileum, extending to the back and over the whole abdomen, the muscles of which, together with those of the back, were thrown into a state of violent spasm: the abdomen at this time was tense, and firm, like the feel of a tetanic belly: profuse perspiration of the upper extremities and head now generally accompanied the attacks of pain. This state continued until he took ninety drops of black drop in the course of two hours, when he obtained complete relief; the belly became gradually soft, and he had an evacuation of the bowels; this state of ease continued until the following evening, when the pain returned in the left side high up, under the ribs, and across the chest, with spasm of the muscles of the back; fifty drops of black drop procured relief: thus

the case went on, the pain seizing sometimes one place, aud sometimes another, and yielding to the opiate, which was obliged to be increased in its dose, so that on the 12th he took one hundred and thirty-five drops of black drop; emaciation now proceeded rapidly, and the strength failed considerably; the skin, to the size of a dollar, over the left nates sloughed in consequence of the pressure upon it during the time he was obliged to sit upright; fortunately the necessity for preserving this posture had ceased, and he was now able to be on his side. About this time he first complained of difficulty in swallowing, the morsel appearing to be stopped before it reached the stomach; this was attended with pain, and when fluids were swallowed a gurgling noise was heard in the chest. The respiration was also affected by swallowing, and considerable panting followed every draught, so as to render it necessary for him to pause for some time between each mouthful. A sharp burning pain was now felt in the upper part of the left thigh, proceeding from the body and terminating abruptly about midway above the knee; this was not constant, but like the others came on in fits. On the 13th the pain left its former position in the left side, and attacked the right in the region of the liver. 14th. It returned to the left side, extending across the chest, with difficulty of breathing and speaking; the

pulse, since he was confined to bed, ranged from 110 to 120, and his daily dose of black drop at this time was from 150 to 200 drops: notwithstanding this amount of opiate, he was never drowsy or apparently narcotised, but at times a state of great excitement was produced, during which he talked much, and often wandered: the largest quantity he took was on the 18th, when it amounted to 285 drops; on that day the pain and spasms were most severe.* The liver could now be distinctly felt enlarged, and it increased daily in size: the prostration of strength and emaciation became so great, that he was unable to sit up to evacuate the bowels; great flatulency prevailed, and distressed him, of which I contrived to relieve him, together with the stools, which were now always fluid, by introducing the œsophagus tube of the stomach pump into the rectum, and drawing off the contents by the syringe; this operation sometimes occupied a good deal of time, as I was obliged to wait for the action of the colon to pass on the contents; the rumbling of the wind gave notice of its approach, and in this way I got off great quantities of both flatus and fæces, so that for the last ten days of his life he was not called

* The effect of opium in producing retention of urine was strongly marked in this case. I was frequently obliged to empty the bladder by the catheter after he commenced the large doses.

upon to make any exertion. In this way he went on daily, becoming more ghastly, and the wandering increasing, although at times when any thing of importance presented he was perfectly collected, and seemed as if he had the power of recalling his faculties on an emergency; of this he gave some striking instances a very few days before death. On the 24th, the pulse fell in the evening to 108, and on the 25th to 100; this day the countenance was particularly ghastly and debility extreme. The 26th, pulse 104; he awoke more collected, and seemed better than for some days; at one o'clock he turned on his side to have his back rubbed with eau de cologne, and on speaking to him shortly after, he seemed to pant more than usual; he then called me and said he felt greatly exhausted; instantly he was seized with slight convulsion and lost all consciousness, he turned on his back, a rush of fæces and urine took place into the bed, and for the space of an hour he continued to live, moaning and turning his head from side to side; the pulse kept firm at first, then began to fail, and about three o'clock he died.

The body was examined on the following day in the presence of Dr. Cheyne, Dr. Graves, Dr. Townsend, Dr. Wm. Beatty, Dr. Greene, Mr. Harris, and myself. On exposure, the ema-

ciation appeared extreme. Before proceeding to the dissection, we wished to let some of the gentlemen present, who had not attended him, feel the enlarged liver, but we were much surprised to find that no tumor could be perceived, this, though at the time inexplicable, was afterwards satisfactorily accounted for. The thorax was now opened and the right lung was found healthy, but in the left cavity of the pleura a large effusion of blood, partly coagulated, presented. The lung was compressed, and the inferior border appeared slightly carnified, leaving the rest of the organ healthy. The incision being carried into the abdomen, disclosed the viscera contained in it, the external appearance of which was natural, the longitudinal fibres of the large intestine were strongly developed, the stomach adhered to the diaphragm by a small band of membrane, and the liver, which during life had appeared so much enlarged, was found very little increased in size, and in structure quite healthy, but the outer convex surface was marked by deep indentations corresponding to the ribs, as if it had been subject to strong pressure against them. When the intestines and liver were removed, a large firm tumor was discovered about the size of the head of a child a year old, lying upon the three last dorsal vertebræ, its transverse diameter being a little longer than the perpendicular, and extending with a curved outline to the kidney

on both sides, having the aorta passing down before it, in a sort of groove on the anterior surface. The artery was cut across at the bifurcation, and slit up above the tumor, by which a round well defined hole, as large as a shilling, was exposed on its posterior surface, a little above the origin of the cœliac artery, communicating with the tumor, which thus proved to be an aneurism of the aorta. On examination it was found that it was covered by the crura of the diaphragm, which were expanded and stretched tightly over its surface, forming an outer coat for it, on which many filaments of nerves were observed to run. In removing the tumor, an irregular opening was discovered at the upper and left part, through which the blood found in the thorax had escaped. The aneurismal sac was deficient at the back part, and its place was supplied by the three last dorsal vertebræ on which it lay. The bodies of these were deeply eroded, but the intervertebral cartilages remained sound and entire, forming prominent white rings between the destroyed vertebræ. At the left side of the eleventh dorsal vertebra, an opening large enough to admit the end of a finger was found, leading into the spinal canal. The heart was small ; there was concentric hypertrophy of the right ventricle, the walls of which were thicker than those of the left. The stomach and intestines were slit open through their whole extent,

and with the exception of partial softening of the mucous membrane, were quite healthy. The course of the symptoms in this case, although strange, and at the time inexplicable, can be accounted for by the position and growth of the tumor, and its influence upon the parts with which it was connected. In the commencement, when it was yet small, it produced the dull fixed pain that was mistaken for rheumatism; and this may be considered the first stage of the disease. As it advanced in size, it gave origin to the train of symptoms in which this case differs from any that I have found recorded; I allude to the severe suffering of pain and spasm in the tract of the alimentary canal; this, as far as I know, did not occur in others, but in this it was so great, that for several months it formed the whole subject of complaint, and the attention was directed entirely to these organs; this can be satisfactorily explained by a reference to the situation of the tumor: it was placed in the neighbourhood of the solar plexus, and the pressure exerted by it upon this great nervous centre, at once produced irritation in the whole of the organs supplied by filaments from it, and caused the "neurose intestinale" of Andral. The obscurity in the diagnosis was caused in a great measure by this class of symptoms, but from what I have observed on the situation of the disease, it will appear they

were accidental, and therefore are not to be expected in similar cases, unless the tumour occupies the same position : this may be said to constitute the second stage. The third and last stage commenced when the tumor, having by its pressure destroyed the vertebræ, opened a communication with the spinal canal ; it is marked by the occurrence of the pain and spasms of the external muscles, and parts supplied by the spinal nerves indicative of irritation of the medulla spinalis.

It might be expected that the pulsation of so large a tumor would have been perceptible, and thus the nature of the disease have been developed.* But it is evident it was not so in this case, else some of the many physicians who examined him must have discovered it. Andral, amongst others, made a most minute examination of the abdomen ; his expression on the occasion was, "*il faut vous bien palper monsieur,*" yet he detected no pulsation. In fact, the situation of the tumor entirely precluded the possibility of ascertaining its existence by the touch, firmly bound down to the spine by the crura of the diaphragm, and protected on the sides by

* Sir Astley Cooper, speaking of Abdominal Aneurism, says, "When an aneurism is seated above the cœliac artery, its pulsation may be distinctly felt at the scrobiculus cordis." *Lectures by Tyrrell,* vol. ii.

the ribs, it lay secure from observation. A few days before death I perceived a pulsation in the epigastrium, which, on examining more closely, I found to be that of the artery, but I could discern nothing of tumor or diffused pulsation, and as it is usual to be able to feel the beating of the aorta in these persons, I took no more notice of it. I regret much that we were not led to employ auscultation to the spine, as I think it very probable the disease would have been thus discovered, but as there was not the most remote suspicion of the existence of such a disease, the examination was not made. The chest was examined on two occasions, before death, by two most experienced and successful stethoscopists, Doctors Graves and Townsend, and no lesion was discovered. Auscultation affords a ready means for the diagnosis of aneurisms in the limbs, in those cases in which there is no perceptible pulsation. The "bruit de soufflet," heard on applying the stethoscope, is very striking, and points out the nature of the disease ; and it is fair to suppose that this indication would have been afforded had the instrument been used along the spine.

The intermissions seem to be the most inexplicable part of the case ; they formed part of the grounds upon which Andral and others founded the opinion, that the disease was in the

nerves; but although so remarkable a circum stance, the case is not singular in this respect, for Scarpa relates one in which there was a complete suspension of suffering, at a period of four months from the commencement of the disease.

This case resembles the one I have detailed in many particulars, and like it the aneurism was not discovered until after death. It commenced with constant pain in the loins, extending to the abdomen; more severe at night than during the day; at times attended with violent spasms in those parts. During the first four months no remedies were employed, but rhubarb and diuretics, and nettles were applied to the loins. At the end of this period there was an intermission, and during seventeen days he was completely relieved from all suffering. The pain, however, recurred, and he now put himself under the care of a physician, who considered the disease rheumatism, and gave him sudorifics, and blistered the loins, under which plan the disease increased. He then consulted another physician, who suspected calculi in the kidney, and treated him with volatile liniments, soap pills, and emollient drinks, but without any relief. He had at that time a fixed but extended pain in the left lumbar region, and an almost continual restlessness. His pulse was natural;

there was no fever nor vomiting. The inferior extremities were sometimes cold, whilst the superior and the head were often covered with perspiration, particularly when the pain was violent, which happened most frequently after dinner, or during the night. The pains then extended to the left inferior ribs, and to the left groin and thigh, and sometimes to the testicle of that side. It was observed that these pains were most severe in rainy or stormy weather. Opium in large doses alone gave relief; at times assafœtida was combined with it. He found himself better when seated on the bed, and bent forwards. No pulsation was ever felt by the patient or others. He died suddenly about nine months after the commencement of the disease. On examination, an aneurism of the aorta was discovered lying on the lower dorsal vertebræ; it had burst; and the blood was effused behind the peritoneum in such quantity as to raise this membrane the whole way from the diaphragm to the left crural arch. The aorta ran down in front of the tumor, undilated; on slitting it open, the communication between them came in view; it was about an inch in diameter, with hard and callous edges. The aneurismal sac was deficient at the back part, and its place was supplied by the dorsal vertebræ on which it lay. These were very much eroded and destroyed, but the intervertebral cartilages remained

entire. Here was a case very similar to that of Mr. M., in its symptoms, progress, termination, and the position of the tumor, yet differing from it in not being attended with the colicky pains in the bowels; still more striking is the similarity in point of size and position. In the case of aneurism mentioned by Morgagni,* in an old man, the tumor was of a large crescentic form under the diaphragm, the horns pointing downwards, the posterior parietes of the sac were deficient, and the last two dorsal vertebræ were eroded, leaving the intervertebral substance sound: yet this patient had no pain, nor sense of weight, nor difficulty of breathing. I find also in the Medical Gazette for April 25th, 1829, a case by Mr. Mayo, of aneurism of the aorta between the crura of the diaphragm, stretching across the spine, and reaching to the top of the kidneys; yet in this case, although the patient had been for six years subject to violent attacks of pain in the back and loins, with numbness of the limbs, and for three weeks before his death suffered excruciating pains in his back and left inguinal region, compared to boiling lead poured down the thigh, there is no mention of pain in the bowels. The apparent increase of size in the liver in the case of Mr. M., was evidently caused by the great bulk of

*pist. 40, sec. 26.

the aneurismal tumor pressing it downwards, and forcing its inferior margin below the ribs; and the difficulty in discerning it after death, before the body was opened, was the result of the bursting of the sac, by which its size was diminished, and the liver was suffered to resume its original position. The deep indentations with which the liver was marked gave evidence of the pressure to which it had been subjected, and may account for the attack of pain in the right side which so much resembled hepatitis.

HISTORY

OF

TWO CASES OF ANEURISM,

SUCCESSFULLY TREATED BY LIGATURE.

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1. Aneurism of the left subclavian artery.
2. Aneurism of the right carotid.

The details of insulated cases in surgery seldom are sufficient to afford a student a perfect insight into the nature of disease; but when the general principles on which professional knowlege should rest are implanted in the mind, then those details become eminently valuable in illustration of facts, and in confirmation of opinions previously entertained. Of late years the pathology of the arterial system has been so successfully investigated, that aneurism, which

heretofore condemned the unfortunate patient to the miserable alternative of death or mutilation, has become stript of more than half its terrors, and operations, before regarded in a most formidable light, are now undertaken with every confidence of success. By the relation of the following cases, I cannot hope to add to the stock of pathological knowledge we already possess, but if it will serve to explain some circumstances connected with the treatment of this disease, particularly with reference to aneurism of the carotid, it will not be considered an unprofitable labour.

Without anticipating any remarks to which these cases may furnish occasion, I may mention a few circumstances in order to attract the reader's attention. 1st. That both these large arteries were tied with the single round ligature, a mode of treatment which, according to my experience, is more successful than any contrivance for arresting the current of blood, whether by the presse artère or otherwise. 2nd. That the carotid was tied within a quarter of an inch of its origin from the innominata, a circumstance heretofore considered as likely to interfere with the success of the case, by preventing the formation of an internal coagulum. 3rd. The very trifling disturbance of constitution that followed on the tying of so important a vessel as

subclavian artery; the patient never having a single symptom that could occasion anxiety as to the result, until the occurrence of inflammation and suppuration of the sac; and 4th. The recovery of both patients notwithstanding suppuration, an event which has always been considered as pregnant with the most dangerous consequences. Indeed, in the case of carotid aneurism, three times was the woman's life in such imminent peril, as almost to preclude hope, but in the other instance the patient recovered with as little trouble, and perhaps with more rapidity, than if it had been a case of common abscess.

1. William Austin, æt. 40, by occupation an hostler or helper about livery stables, applied to me on the 25th June, 1829, complaining of pain in the left shoulder, arm, and hand, together with a distressing sense of numbness, contraction of the fingers, and œdema of the lower portion of the limb. The pain in the arm and hand was so excessive as entirely to prevent him following his usual employment, and occasionally to deprive him of sleep. He had a firm pulsating tumor below the clavicle, in that part corresponding to the division between the pectoralis major and deltoid muscles, about the size of the half of a hen's egg, becoming smaller on being pressed, and losing its pulsation, and almost

disappearing when the artery is compressed above the clavicle. He has no recollection of having ever sustained any injury in that part, neither had the tumor been observed by him until eight or nine days since. Even on his examination he could scarcely be persuaded that the tumor, in which he felt no pain, could be the cause of, or connected with the uneasiness and numbness of the arm.

He was immediately admitted into the Meath Hospital, and confined to bed, with orders to maintain a state of perfect quietude : cold was applied to the tumor : saline purgatives administered every day, and venæsection on the 27th, to the extent of fourteen ounces. Notwithstanding this treatment the tumor increased with great rapidity, extending outwards towards the axilla, and slightly displacing the clavicle upwards, yet the derangement of this bone was so trifling as not to be observable without close examination. On the 29th the tumor had increased to more than double its original size, and as its further growth might, by pushing the clavicle upwards, derange the relative anatomy of the part, and add materially to the difficulty of the operation, it was determined in consultation that the subclavian artery should be tied on the following day.

There are but two situations in which the subclavian artery on the left side can be taken up before it reaches the first rib, namely, whilst it is yet between the scaleni muscles and after it has passed the outer edge of the anterior scalenus. The former of these operations has been (as far as I know) only performed by Baron Dupuytren, in a case, the particulars of which are detailed by M. Marx in the 2nd No. of the *Repertoire generale d'Anatomie*, and the advantages attendant on the choice of this situation are stated to be, 1st, the facility of cutting down on and exposing the artery here: 2nd, the impossibility of interfering with or injuring the great subclavian vein: 3rd, the great nerves being thus placed in a comparative state of safety. But in M. Marx's report, although otherwise carefully drawn up, I find no mention whatever made of the phrenic nerve, which, although subject to occasional trifling irregularity of situation, is always so placed in front of the anterior scalenus that it could only be avoided in a division of this muscle by a protracted and tedious dissection, and perhaps not always, even with this precaution: and it may be here remarked, that in the sketch of the operation which accompanies the paper, no trace of the nerve is to be observed at all, an omission, which occurring under the eye of so excellent an anatomist, appears inexplicable.

Again, I find no mention made of the thoracic duct, which lying just at the internal edge of the scalenus, must have been fearfully endangered. It is true, that as the progress of the case presented no untoward symptom, and as it eventually terminated in the recovery of the patient, there is every reason for believing that neither of these very important parts were injured: yet as the mere knowledge of the existence of such difficulties must add to the embarrassment of the operator, and their avoidance cause both trouble and delay, they furnish very good grounds for selecting any other possible situation in which the artery may be secured. Add to these, that generally there are three large branches given off by the subclavian whilst it is between the scaleni muscles, so that even in the dead subject it is difficult to find space sufficient to permit a needle being turned round the trunk without injuring one or other of them; and that the first dorsal nerve, from its situation behind the artery, would be extremely liable to be included within the ligature. These reasons will be sufficient to shew why this situation was not preferred in the present instance, and why it should never be chosen, unless the aneurismal tumor be so placed as to prevent the exposure of the vessel after it has passed the scaleni, where it has hitherto been so frequently tied with success.

The operation was performed as follows :

The patient being placed on a table, his head supported upon a pillow and thrown back as far as possible, whilst his shoulder was depressed by an assistant, an incision was made along the edge of the clavicle, commencing midway between the centre of the sternum and the acromion process, and carried outwards to the extent of two inches and a half. From the sternal extremity of this incision, another was carried along the line of the external edge of the scalenus, and the triangular flap thus formed, was dissected back, exposing the fascia, the external jugular vein, and a plexus of small veins communicating with it. In carrying the incisions deeper, a small vein was cut off close to the trunk of the jugular, which poured out so much blood as to obscure the parts, and to render the application of a *temporary ligature* necessary. The perpendicular incision was carried no deeper than to expose the fibres of the scalenus muscle, after which the remainder of the operation was completed with the handle of the knife and the finger. The detachment of the cellular tissue in this manner was easily accomplished, but required a good deal of time, in consequence of the narrowness of the wound in its deepest part, the entire breadth of which extended only from

the external edge of the scalenus to the trunk of the jugular vein, a space of not more than three quarters of an inch. Had I deemed it advisable to divide this vessel, the time occupied in the operation must have been greatly lessened, but in that case the patient either should have lost a very considerable quantity of blood, or have been exposed to the hazard attendant on the application of a ligature around the vein, a risk which I consider by no means of a trifling nature, and which ought to be avoided at any sacrifice of time whatever.

On exposing the omo-hyoideus muscle, a very large artery, (probably the transversalis humeri,) with its accompanying vein, was seen to traverse the middle of the perpendicular incision, in a situation where it might easily have been wounded, had the edge of the knife been used incautiously. The large nerves next came into view, and one of them receiving an impulse from the artery, was for a moment mistaken for it; but on applying pressure, and finding that the circulation in the limb was not thereby commanded, that idea was abandoned, and the vessel sought for still more deeply. A few more touches of the handle of the knife were sufficient to lay it bare :* the

* The instrument used in this as well as in the following case, was made by my ingenious friend, Mr. F. L'Estrange, and is, as far as I know, of his invention, although by some

needle was introduced from above, and the ligature thrown round it with the greatest facility. It was then tied firmly, and the pulsation in the aneurism and in the radial artery ceased instantaneously. One end of the cord was cut off close to the knot, the other left hanging out of the wound, the edges of which were brought together, one stitch only being applied to the angle of the flap.

The patient lost not more than three ounces of blood during the operation, and walked from the theatre to his bed in an adjoining ward.

Immediately after the operation he experienced some uneasiness in the left arm, with a peculiarly disagreeable sensation which he could not describe, but on the limb being wrapped in flannel he expressed himself quite relieved,

it is believed to have been first used in America. It is of the usual shape, but it furnished with two eyes, and the lower portion containing the eyes is removable from the shaft by means of a screw. One of the eyes carries the ligature, and the other is destined to be laid hold on by a small hook after the instrument has been passed under the vessel. When thus secured the shaft of the needle is to be unscrewed, and the lesser portion with the ligature is easily drawn up. I have given a sketch of this needle in order that its construction may be perfectly understood, because I believe, by means of it, a ligature may be thrown round any artery, no matter how deeply situated.

and from that moment remained perfectly tranquil, without any symptom that could excite the smallest apprehension. No perceptible alteration of temperature could be observed at any time in the arm: both limbs were carefully examined by the thermometer at different times, but the instrument never indicated any difference between them in this respect.

On the second day after the operation, the veins on the back of the hand were large: the radial artery evidently full of blood, and feeling like a soft cord under the finger. On the tenth day a slight thrill was perceived in the vessel, probably communicated by the current of blood through it, and many who examined the patient on this and subsequent days, considered that a distinct pulsation could be felt synchronous with the action of the heart, but of course extremely weak. However, I have never been able to satisfy myself that such pulsation actually existed. On the morning of the seventeenth day the ligature came away without the loss of a single drop of blood. The suppuration was small in quantity and of the healthiest character. The aneurismal tumor was greatly diminished in size, and its edges scarcely defined.

On looking over the notes of the case, which were carefully taken every day, I find no con-

stitutional symptom worth recording. They mark a constantly progressive improvement, and perhaps the most surprising feature in the case is, that a vessel of such size and importance could have been tied without producing some disturbance in the system. Yet the patient never seemed to suffer any inconvenience except from the confinement to bed, and the restrictions on his appetite which were deemed necessary. His sleep was always tranquil and refreshing; his appetite good; his pulse, except on one occasion, never above 74. It should be remarked, that even before the operation a slight irregularity of pulse was observed, amounting almost to an occasional intermission; this occured of course afterwards, during the progress of the case, but never to the extent of exciting alarm.

On the twenty-first day the wound might be considered as healed; the arm was free from pain; its sensibility and freedom of motion restored; the œdema of the hand and fingers removed; but there was a slight degree of tenderness remaining in the situation of the diminished aneurismal tumor, which alone prevented his removal from the hospital. It may be well conceived that this case excited considerable interest amongst the pupils; every one who entered the ward examined it with the utmost minuteness,

and the patient came to suffer much from constant weariness. Perhaps the daily handling of the part contributed to render it inflamed and sore, and fearing that suppuration of the sac might ensue, I had him removed from hospital on the 29th July, and placed in a comfortable lodging.

What I had dreaded came to pass; the tumor evidently increased in size, became tense and painful, but not discoloured; every effort was made to procure resolution; twelve, fourteen, or twenty leeches were applied daily for five or six days; cold lotions constantly kept to the part; saline purgative medicines administered, and the patient placed on low diet; yet all these measures proved ineffectual, as the tumor still continued to grow, and seemed to have a tendency to point towards the axilla. He was, therefore, re-admitted into hospital on the 12th August.

On the 14th, the abscess was opened by a tolerably free incision, and about a pint of fœtid purulent matter, mixed up with large clots of dark coloured blood discharged, which seemed to afford the patient considerable relief. I remained with him above an hour applying gentle pressure with my hand to every part of the tumor, and anxiously endeavouring to procure the

evacuation both of blood and purulent matter, and having accomplished my object, a large compress was applied, and firmly secured by a few turns of a roller round the breast and shoulder. No fever supervened. The discharge was puriform and in small quantities, and at the end of three days became limpid and resembling serum. On the ninth day the wound was completely healed, and the patient left the hospital perfectly well on the 31st of August, having surmounted the dangers, first of so important an operation, and secondly of a suppurating aneurismal sac, without ever having experienced a single alarming symptom.

It may not be uninteresting to mention, that at the latter end of October, a period of not quite four months from the day on which the operation was performed, I saw this patient actively engaged in his former occupation as assistant in a stable, and he stated to me that he was as well able to earn a subsistence as at any former period of his life.*

2. Elizabeth Rourke, æt. 40, a short woman

* It may be proper to mention, that this patient received a fall on the shoulder soon after, which affected the arm with paralysis for some weeks. He has, however, since recovered, and is at this moment employed as a helper in a stable, but certainly he is not equal to severe or continued exertion.

of spare habit, and by occupation a servant, was admitted into the Meath Hospital on the 19th August, 1829. She had a large tumor on the right side of the neck, extending from within half an inch of the root of the ear, to within one inch of the clavicle; its anterior edge advanced on the jaw half way to the symphysis of the chin, and more inferiorly rested on the ala of the thyroid cartilage and side of the trachea; its posterior boundary was not so well defined, as it lay deep in the neck, where it was covered by the sterno-mastoïd muscle, which it had pushed from its natural situation. Its longitudinal measurement was seven inches and a quarter, its transverse six inches. Its shape was globular; it was uniform, tense, pulsating violently, and of the natural colour, except in one spot towards the centre, where there was a red spot nearly of the size of a split-pea. It was not compressible in the least, although, from its elasticity, it seemed that its contents were fluid. The history of the case is shortly as follows:—

About fifteen years ago she observed it first, and attributed it to the extraction of the stump of a tooth from the lower jaw, as it was in the course of a few days after the operation she perceived it.* It was then about the size of a small

* Upon being desired to point out on the opposite jaw, a situation corresponding to that in which it first appeared, she

kernel, and attended with pulsation, and its increase was so gradual that at the end of seven years it had only attained to the size of a small nut. At one period she had been induced to use some stimulating liniment, and then it increased more rapidly, but when not interfered with, its growth was very slow and never attended with pain. About three weeks ago she struck her head and the side of her neck accidentally against a bed-post, since which time it has increased very rapidly, become painful and tender to the touch. Her sleep is uneasy, and she complains of headach, particularly at the diseased side. Otherwise her health is good; pulse 72; respiration natural; and the functions of the digestive organs unimpaired.

As the tumor appeared to be increasing so quickly as to lead to an apprehension, that in the event of delay there might not be space sufficient to allow of the artery being secured between

placed her finger in the immediate neighbourhood of the facial artery where it turns over the maxilla. From this circumstance it appeared to have been originally an aneurism of this vessel; but in the progress of the case, when after the operation the tumor began to diminish, the finger could be placed between it and the bone, evidently shewing that the disease commenced somewhere below it, and proving how little reliance can be placed on the history of a case as collected from illiterate patients.

it and the clavicle, the operation was performed on the day but one after her admission into hospital.

A perpendicular incision was made of about an inch in length, nearly along the line of the anterior edge of the mastoid muscle,* and terminating at the sterno-clavicular articulation, from the lower end of which, another was carried outwards along the upper edge of the clavicle to the extent of nearly three inches, and the flap being turned up, was held by an assistant. The mastoid muscle was next exposed, and a director being passed under it, its sternal and a great portion of its clavicular attachments were divided. The edges of the sterno-hyoid and sterno-thyroid muscles were easily detached and drawn inwards, by the nail of the fore-finger of the left hand, and the sheath of the vessels exposed: this was torn through by the end of a director, and the artery came distinctly into view. The needle was now passed under it from without inwards, and it having been ascertained that nothing but the artery was included, the ligature was tied firmly around it, at the distance

* In the natural situation of these parts, the carotid artery corresponds with the space between the sternal and clavicular origins of this muscle, but here the relative situations were disturbed by the growth of the aneurism, and the vessel lay under the sternal origin.

of about three-eighths of an inch from its origin from the arteria innominata. During the operation the great jugular vein was not exposed. It could be seen through the sheath occasionally becoming greatly distended with blood, but it never obscured the artery or embarrassed the operation. The par vagum was not seen at all. Immediately on the ligature having been tightened the pulsation in the tumor disappeared.

In the course of two hours after the operation, the patient complained of giddiness in the head, numbness and trembling of the right arm, an uneasy sensation in the teeth and gums of the upper jaw, and the temperature of the right side of the face and of the right hand, was evidently lower than that of the opposite side.

Four hours after the operation, the temperature of both sides of the face was the same, but with the return of heat came a very perceptible pulsation in the tumor. Patient excessively uneasy and restless ; pulse 92 and full ; skin hot and dry.

She was now bled to the amount of 12 oz. and expressed herself relieved, but towards evening she again became uneasy ; complained of the numbness of the right side of the face and of the arm : she vomited a small quantity of green.

ish matter. A turpentine enema was administered, and she had a draught of carbonate of ammonia saturated with lemon juice.

22nd. Aug. 1*st day after the operation.* Bowels freed during the night, and has had some refreshing sleep, yet is not relieved. She is still anxious and uneasy. Skin hot and dry, with great thirst. Pulse 120, hard and vibrating. Temperature of the tumor increased. The nausea has been removed, and she no longer complains of numbness in the arm, nor did this latter symptom ever annoy her afterwards. Pulsation in the tumor still observable.

She was bled to 12 oz., and the medicines of yesterday repeated.

24th. 3rd *day.* During the entire of yesterday there was no remarkable alteration until evening, when the tumor began to be very hot, painful, and troublesome, accompanied with general restlessness, heat of skin, and thirst; pulse 130, very hard and throbbing. Pounded ice was applied to the swelling, when she became easier and had some sleep. She is now tolerably tranquil, the tongue moist, and pulse but 120. The tumor, however, appears to be increasing in size; the pulsation in it is very apparent, and she feels pain in it constantly, except when the ice is applied.

The magnesia and lemon juice to be continued.
A turpentine enema at three o'clock.
Venæsection in the evening to xv. oz.
A draught at bed time containing 12 drops of tinctur. opii. acet.

25th Aug. *4th day.* Has had an uneasy night in consequence of frightful dreams, but is still not worse: pulse quick and small. Bowels moderately freed by the magnesia, which has always acted as a gentle aperient. The appearance of the tumor begins to be alarming. It has increased in size: is changing in colour to a dark tinge, and is œdematous, and its pulsations are distinctly perceptible. It also becomes very hot and uneasy as evening approaches.

Thirty leeches to be applied to the tumor.

27th Aug. *6th day.* Very little alteration since last report, except that the tumor is increasing in size, is hotter and more painful; pulse steady at 120, and the general anxiety continues.

Twenty leeches to the tumor.
An anodyne draught at night containing xx drops tinctur. opii. acet.
Pounded ice has been constantly applied to the tumor.

30th Aug. *9th day.* The tumor has increased to an enormous size. It has extended

across the centre of the thyroïd cartilage, and partly covers the ala of the left side. There is not one-eighth of an inch between its lower edge and the clavicle, and the wound which was along the line of the upper margin of this bone now seems to be below it, between it and the rib. It is completely healed, except at the spot where the ligature hangs out. The colour of the tumor is of a bluish pink, and the œdema has increased. The pulsation evidently diminished. The "bruit de soufflet" not perceptible.

Sep. 1st. 11*th day*. Rested indifferently last night, and has had no motion from the bowels since yesterday morning. Stomach very irritable; has vomited the medicines administered for the purpose of procuring some evacuations. Tongue brown and furred in the centre; pulse 108 and hard. The state of the tumor nearly as before.

A draught containing aromatic sp. of ammonia and tinct. of opium with cinnamon water, was ordered to be taken immediately and repeated after two hours if the stomach continued irritable.

The stomach became calm after the second draught, after which a purgative enema procured copious evacuations.

Sep. 3rd. 13*th day*. Rested well the two last nights. Pulse 102. She feels no pain in

the tumor or uneasiness in the head. The tumor appears to be diminishing, and the skin over it is not so tense. Pulsation very obscure. It measures transversely $7\frac{1}{4}$ inches, or about $1\frac{1}{4}$ inch more than it did before the operation.

Sep. 6th. 16*th day*. Since the last report there has been scarcely any alteration worth mentioning. The existence of pulsation in the tumor has now become a disputed point, and there is neither pain nor heat, or even uneasiness in it. The diminution in its size is scarcely perceptible unless by measurement, and that is liable to fallacy. Tongue clean and moist. Pulse varying, according to circumstances, from 86 to 100. Stomach calm unless when the bowels become confined, then it is always more or less irritable. There is a slight oozing of bloody serum from the wound.

Sep. 9th. 19*th day*. The patient seems to be going on as favourably as possible. The tumor has diminished greatly within the last four days, and now measures transversely but six inches: it has retreated from the left side of the neck altogether, and nearly half the thyroid cartilage of the right side is uncovered. Although measurement shewed no perceptible alteration in the dimensions of the tumor as compared with its size before the operation, yet to the eye it evidently

appeared smaller, and the jugular vein, which before was not to be seen by reason of the tension, was now observed crossing it obliquely. The ligature came away to-day without the loss of a single drop of blood.

From this period until towards the termination of the case particular reports do not seem to be necessary, for a few general remarks will sufficiently explain its progress and the condition of the patient. She lay in bed perfectly tranquil, her pulse seldom above 84, her sleep generally to the extent of five or six hours in the course of the night, her appetite tolerably good, and her strength increasing. On the 30th day after the operation she was up, walking about the ward; the wound was very nearly healed, and she might have been discharged but for two circumstances.

1. The tumor, although diminishing, yet decreased so slowly that it was still of a very considerable size: (three-fourths of the very largest sized orange will give a tolerably accurate idea both of its size and dimensions;) and it was evident that the poor creature could not return to service with such a mass of deformity.

2. From the very commencement she had been harassed by a short dry cough, which incommoded her very much, and often interfered

with her rest at night. The chest, however, on being examined by the stethoscope appeared sound, and the cough was attributed to irritation.

For these reasons she was detained in hospital, and measures adopted to relieve the cough, but without success: at length it was imagined that confinement in the ward of an hospital might tend to maintain this symptom, and I had her removed to a lodging within a mile and a half of Dublin, where I might still have an opportunity of seeing her occasionally. She left the hospital about two months after her admission, and as far as the operation of tying the artery was concerned its success seemed to be complete; but my own experience of carotid aneurisms, as well as the histories of them recorded by surgical writers, having taught me that their results were not always as favourable as similar diseases elsewhere situated, I was determined not to lose sight of my patient until something decisive occurred with regard to the termination of the case.

After remaining in the country during four weeks she was re-admitted into the hospital. While absent there was little to remark, except that the cough remained unrelieved, and the tumor had diminished scarcely, if at all. On her return it appeared to be about three-fourths of

the size it had been originally. It was of the natural colour, very hard, firm, and flagged at the base, softer, and giving the sensation of fluctuation superficially. It was slightly corrugated, the skin seeming loose and moveable over the sac. The finger could be easily passed along its superior edge between it and the inferior border of the jaw bone, shewing that whatever artery had been the seat of the disease, it was not the facial, as had been originally supposed, and between its lower border and the clavicle there was a space of an inch and a half in length. Its transverse diameter seemed to be proportionally diminished. With respect to her general health there was no remarkable alteration. At present she is reduced and weakly, has a moderate appetite, little or no energy, enjoys but little sleep, has a weak pulse, beating about 88 in the minute, and great tranquillity of disposition. She always says "she is better," but the cough is not altered in the slightest degree.

In this condition the patient remained until the 7th of December, when finding the tumor perfectly indolent, with a firm base approaching almost to a cartilaginous hardness, I summoned a consultation with a view of deliberating on the propriety of cutting into the tumor, evacuating its contents, laying down the integuments, and endeavouring to heal the wound as rapidly as

possible afterwards. The proposition was not approved of, and the patient remained in hospital with little alteration as to the symptoms for a few days longer. On the night of the 11th December, *nearly four months after the operation*, she felt herself very ill: the pulse became accelerated, the skin very hot and dry to the touch, at the same time that she complained of cold and shivering: there was headach and a slight tendency to nausea. On a sudden the tumor began to increase again with great rapidity, accompanied with a sensation of burning heat within it, and of a general uneasiness over the side of the neck and head.

Dec. 12th. *Report.* She has passed an exceedingly uncomfortable night, with scarcely any sleep, and when she did slumber, was disturbed by unpleasant dreams. Pulse 120, small and thready; skin hot and dry; tongue rather clean; respiration natural; bowels open. The tumor has increased to more than double its size, it reaches the ear above, the clavicle below, and nearly across the thyroïd cartilage in front. Its surface is tense, of a pale red colour, with an inclination to œdema. There is a remarkable sensation of fluctuation, but examination with the fingers gives so much pain that is not easy to feel it with much accuracy. On the most rigid investigation no cause can be discovered for this extraordinary change of symptoms.

Twenty leeches applied to the tumor, with a constant succession of cloths dipped in cold water afterwards.

In the evening she was not relieved, and as it seemed that the sac either had or was about to suppurate, it was resolved to try what its contents might be. A small puncture with a common needle was made, and a fluid escaped having very much the appearance of that serous matter often found in a scrofulous abscess. The aperture was then slightly enlarged, but the discharge was trifling in quantity, more highly tinged with the colour of blood, and soon ceased to flow. The wound was then accurately closed with a twisted suture, and the cold applications ordered to be continued.

Dec. 13th. *Report.* The patient says she had a moderately good night, and appears far less disturbed than yesterday, but she speaks in a weak tone of voice, and is both fatigued and debilitated; her mind seems more than usually engaged in calculating the result of her case, and she is frightened. She bore the operation of tying the carotid artery almost without uttering a moan, now she will not bear the tumor being touched without complaint. Pulse 128, with some irregularity; tongue clean; respiration, notwithstanding the size of the tumor, undisturbed; skin not hotter than natural. The tumor pretty nearly of the same size as before;

red in colour, and very tender to the touch. It seemed as if but a short space of time could elapse ere it must slough and burst.

Perhaps few cases could occasion greater difficulty than this one presented at this moment. On the one hand there was every reason to suppose that the sac must in a very short time have given way, and the patient have perished with a single gush of blood; a catastrophe that might be prevented by cutting into the sac, searching for the bleeding vessel, tying it above and below the aperture, and then endeavouring by pressure to unite the walls of the abscess. On the other hand the hazard of such a proceeding was evidently great. No one could tell what artery was engaged, nor the size of the aneurismatic opening, nor the collateral vessels which might communicate with it, whilst by the non-diminution of the sac there were grounds for conjecturing that blood was still flowing into it, and if the coagulum was disturbed and this blood permitted to escape freely, a patient so debilitated must have perished before the vessel, probably deeply seated, and at all events obscured by the long continuance of the disease, could be satisfactorily secured. These considerations led to the adoption of less adventurous practice, and the reduction of the inflammation in the tumor became our first object, together with

attempts to relieve the patient's state of general irritation.

Thirty leeches were ordered to the tumor immediately.
An anodyne at night, with 25 drops tinctur. opii. acet.

Dec. 14th. Has had twenty leeches more applied this morning, since which she has experienced no pain in the tumor; slept tolerably well last night and is tranquil this morning. Pulse 128, fuller than it has been for several weeks. As to the size of the tumor, no alteration since yesterday.

The anodyne to be repeated.
The wound made in puncturing the tumor to be closed by means of glue spread on leather.
Cold applications occasionally to the tumor.

Dec. 20th. This mode of treatment has been persevered in until this day, when the following symptoms were remarked. The tumor, although red and inflamed is not so painful as usual. It burst last night at the place where it had been opened, and again a little lower down, and probably discharged a good deal, as the size is much diminished. The purulent matter is healthy in appearance, and not at all tinged with blood; it flows very copiously on the slightest pressure.

Dec. 21st. The pain in the tumor has been so great as to prevent sleep: the tumor

itself is red, swollen, and œdematous, discharging a quantity of matter of a dark brownish colour, probably on account of being tinged with blood; it is besides excessively tender to the touch. The patient's strength is reduced; the emaciation extreme; pulse scarcely to be felt; cough more troublesome, and rather profuse perspiration on the head, face, and shoulders. She has this day complained of soreness of the left hip, on which she is lying.

The tumor was this day opened by an incision, an inch and quarter in length, and all the purulent matter carefully pressed out: compresses were then applied all round the base of the tumor, and pressure made by means of long straps of adhesive plaster. The aperture of the wound was left uncovered.

Dec. 22nd. Tumor diminishing; dressed in the same manner.

Dec. 23rd. On this day the discharge has little more than stained the dressings, and the tumor has become more solid. A large mass of very firm coagulum has protruded through the wound, of a dark brown colour; in every other respect there is but little alteration, except that the soreness has left the hip.

Dec. 24th. On making pressure for the purpose of expelling any purulent matter that

might be in the sac, a large coagulum escaped, followed by some brown fluid. Dressings continued.

Dec. 25th. Patient's condition may be described as follows. Tumor diminished to nearly one-third of its original size: its colour is dark red like that sometimes observed in unhealthy abscesses. The line of the base of the jaw can be distinctly felt, and a narrow compress placed between it and the tumor: between the clavicle and the inferior edge there is a distance of two inches, and the trachea anteriorly is uncovered by it. General health not much improved; cough troublesome; emaciation great; appetite good.

Dressings by compresses continued, and she is to be placed on full diet, and to have 2 oz. of wine daily.

Dec. 28th. Even by considerable pressure on every part of the base of the tumor it is not possible to squeeze out a tea-spoonful of matter. It is now so much diminished that the regular outline of the neck can be observed: the base of the jaw is clearly defined. The coagulum can be felt deeply situated and hard. Cough continues, but in every other respect she appears to be improved.

Dressings as before.

Jan. 12th, 1830. Since the last report there has been very little alteration, except that the discharge from the sac has rather increased in quantity. On pressing immediately behind and below the angle of the jaw, a deep cavity is perceived, from which issues purulent matter always mixed with bubbles of air, and no degree of pressure that can be safely applied seems capable of obliterating it. Graduated compresses, firmly bound down by adhesive plaster, have been tried, but without the smallest benefit. There is moreover a blush of inflammation at the inferior edge of the tumor as if the matter was about to point there also.

A free counter-opening was made at the upper part of the sac, behind the angle of the jaw, and the dressings by compresses continued.

Jan. 14th. Fluctuation was perceptible at the inferior part of the tumor, and an opening made into it, by which about half an ounce of healthy matter was discharged. The counter-opening has been completely healed. The patient's health is evidently improved; pulse still above 100, but fuller and more regular; appetite very good; night sweats by no means constant; sleep undisturbed and refreshing; there is no longer any tendency to inflammation or sloughing on the hip or nates, which had been at one time apprehended.

Jan. 20th. The discharge of pus mixed with air still continued, and it seemed as if the pressure, not capable of producing obliteration of the abscess, acted rather as a source of irritation. It was therefore discontinued and another counter-opening made, with directions to the patient to lie on the right side in order to favour the evacuation of the matter. To prevent a premature healing of this wound a small tape was passed through it and the original aperture, forming a kind of seton, and in performing this operation the probe in passing the coagulum, which occupied exactly the inter-space between the two wounds, disturbed it a little. Immediately *a flow of scarlet coloured blood took place* to the amount of more than one ounce, but which was easily commanded by supporting the coagulum with a small compress placed exactly over it. Patient was exceedingly irritable during the operation and the subsequent dressing, but on the whole her health appeared to be improved.

26th. The seton had been maintained only two days, as it did not seem to favour the discharge of matter by the counter-opening, which, since it was withdrawn, has become completely healed again. The small abscess at the bottom of the tumor had collected, and was on this day opened very freely. Pressure of every kind was

discontinued; all dressings removed, and a small poultice of bread and water substituted in their stead.

Jan. 30th. Nothing can exceed the improvement observable this day. She sleeps well; her appetite is so improved that she requests an increase of her usual allowance; her strength sufficient to enable her to rise during three or four hours yesterday and this day; her spirits excellent, and she entertains the most confident hopes of recovery. The discharge still continues, but it is very healthy and very small in quantity. The coagulum may be felt in the neck, flat on its surface, which appears to be about the size of half a crown, and is situated at about an inch below the angle and base of the jaw; it evidently extends to a very great depth in the neck. This circumstance, together with the depth of the abscess and the rapid return of pulsation into the the tumor after the artery had been tied, leads to a supposition that it was originally an aneurism of the internal carotid.

Feb. 4th. The patient is recovering with great rapidity, her pulse is quite natural, appetite good, and sleep refreshing. There is still a slight cough, but it does not seem to give much trouble. Her spirits are very good, and for

several days she has been up and walking about the ward. During the entire of last night she felt occasionally as if a thorn was sticking in the small wound which still remains open; and on this morning she drew from it a small piece of bone nearly half an inch long, about one-third of an inch in breadth, and a line or two in thickness. It could not be conjectured, either by its shape or dimensions, of what bone this originally formed a part.

Feb. 15th. The condition of this patient may on this day be described exactly as follows. There is a small ulcer in the situation of the opening originally made, scarcely of sufficient size to admit a small probe, and from which there has sprung a small fungus or papilla of a red colour, indicating the existence of carious bone underneath. This, however, I suppose to be some trifling spicula like the former, and will probably come away in a day or two. The discharge from this sore is healthy, of a natural puriform colour, and very small in quantity. No pressure that can be made on any part of the neck will expel half a tea-spoonful, and this discharge seems to be kept up by the presence of the osseus spicula already alluded to, as in one spot there is a sensation as if produced by the presence of a thorn or some sharp foreign body. The coagulum is diminished perceptibly,

and by its situation now shews that the original seat of aneurism was not only deep in the neck, but lower down than what was at first supposed. The woman's health is excellent, her strength restored, her cough gone, and but that I wait the discharge of this suspected particle of bone, and the healing of the wound, she might leave the hospital this evening.

Subsequent to the 15th of February it became unnecessary to make any report of the state of the patient, except that of daily uninterrupted improvement. In a very short time the tumor had *entirely* disappeared, the ulcerations had healed, and no trace remained to indicate the previous existence of a disease so formidable and generally so fatal. She left the hospital early in March perfectly recovered.

She visited the hospital on the 4th of June for the purpose of procuring some medicine for a trifling cough, and afforded an opportunity, to the surgeons and a great number of pupils, of satisfactorily ascertaining the success of the operation in removing the disease; on which occasion she stated that she had resumed her occupation as a servant, and was as well able to earn a livelihood as at any former period of her life.

PHYSIOLOGICAL AND PRACTICAL

OBSERVATIONS

ON THE

UTERO-PLACENTAL CIRCULATION,

AND THE

PHENOMENON OF PLACENTAL SOUFFLET,

WITH ITS UTILITY IN DETECTING THE EXISTENCE OF PREGNANCY, AND THE DEATH OF THE FŒTUS IN UTERO.

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On applying the ear, either naked, or with the stethoscope interposed, to the abdomen of a pregnant woman, provided the pregnancy be at a sufficiently advanced stage, we will, in almost every instance, observe, at some part of the uterine tumor, a peculiar sound, bearing more or less resemblance to that emitted by the action of bellows, which has by its discoverer, Kergaradec,* been termed the "Placental Soufflet," from

* Memoire sur l'Auscultation, appliquée a l'étude de la grossesse, &c., &c., par M. J. Lejumeau de Kergaradec, Paris, 1822.

the circumstance of his having observed it at that part of the outer wall of the uterus, corresponding to where this body was attached internally. And as this appears to me an important fact, both in a physiological and pathological point of view, after having devoted much attention to the consideration of it, I am induced to lay the result of my observations before the profession.

In our examination for this sound, as well as that of the fœtal heart, we will sometimes be able to detect them through the patient's clothes whilst standing erect; however from the attrition of these causing confusion, perhaps the best method in every case, and certainly in the early months, will be to examine the patient lying on her back in bed with a sheet spread over the abdomen. The comparative merits of mediate and immediate auscultation have excited discussion. M. Fodera,* although he recommends the use of the stethoscope in ordinary cases from motives of delicacy, says, that in general the sounds can be heard more distinctly with the naked ear. Siebold,† in speaking, as he calls it, of the hearing trumpet, says, with

* Journal de Physiologie. par. F. Magendie, T. 2. p. 116.

† Abbildungen aus dem gesammtgebiete der theoretisch-praktischen geburtshülfe, &c. von Ed. Casp. Jac. von Siebold. Berlin, 1829.

this instrument, notwithstanding all the pains he took, and the frequent experiments he made, he heard nothing; which fate he shared with many other accoucheurs who were not more fortunate in their attempts; while on the contrary he asserts he heard with the naked ear, as well the double beat or the fœtal heart's action, as the whizzing sound of the single or placental pulsation. Again, Kergaradec with Lænnec supposes, that the application of the stethoscope presents the same advantages as the immediate method, and of its being much preferable in other respects there can be no second opinion. The result of my observation on this subject is, that although some cases may occur, in which, (upon the plan long since adopted by Wrisberg, of pressing the cheek to the abdomen, and thus having the advantage of the sense of touch, as also that afforded by the weight of the head fatiguing the abdominal muscles, in addition to the signs derived from auscultation,) this practice may be admissible; yet I think, as well from motives of delicacy and cleanliness, as the advantages which the stethoscope affords us in exploring parts of the abdomen, which we could not reach with the unassisted ear, that the general use of this instrument is preferable; and I am convinced that whichever method we accustom ourselves to, will afford us the greatest facility in detecting the sounds.

Although the placental soufflet does not always exhibit the same unvarying characters, yet these are sufficiently marked to render it recognisable in almost every case. It assumes all those varieties described by Lænnec under the head of Bellows-sound. The bellows-sound, properly so called, likened, by this author, to the continuous murmur similar to that of the sea, familiarly exemplified by the application of a large shell to the ear: the rasping or sawing sound, which is occasionally found so exactly imitated as to lead the listener to imagine that an artisan is at work quite close to him; and the musical or hissing sound, partaking of the vibrating character so well described by the above named author. In addition to these I have at times observed this phenomenon resembling the cooing of a dove, but this is particularly rare. A more frequent peculiarity which I have noticed, is a strange drone resembling that of a bagpipe accompanying the sound, coexisting without interfering with it. The most constant form we meet with, however, is a combination of the bellows, or the sawing with the hissing sound, commencing with one of the former and terminating with the latter, which is in some cases so lengthy and protracted that the last soufflet is audible when the subsequent one commences, seeming thus to run into each other. These sounds are, from the distention

of the uterus and consequent facility of examination, easily discovered in advanced pregnancy; and although not so loud and sonorous in the earlier stages, yet to the practised ear are quite as distinct. I have not observed any of the above mentioned sounds peculiar to particular stages of pregnancy, having detected them indifferently throughout all. This phenomenon is perceptible over an extent of surface greater or less, according to circumstances; it may have its seat in any part of the uterus, and cases will occur, although if proper precautions be had recourse to, very rarely, where we shall not be able to detect it.

The causes producing the sound in question, and from which these irregularities proceed, I shall now endeavour to explain; and for this purpose it will be necessary to understand the vascular structure and circulation of the utero-placental system, as upon this I conceive it to depend.

The ovum of the human being, is on its descent into the uterus, unendowed with those inherent conditions necessary for its development and the growth of the fœtus, which birds, amphibious animals, and some fishes, in so remarkable a degree possess. It is therefore necessary that there should exist a connexion between it and

the mother : upon this relation must depend its arriving at maturity, and the cessation of this not only checks its further growth, but actually puts a period to its existence. This consideration explains the necessity, first, of an external organ capable of connecting the embryo with the mother ; and secondly, of an internal conformation adapted to this external organ, and possessing structural peculiarities necessary for its temporary existence.

The organ most essential for the growth of the embryo, by the vascular connexion which it sustains between this and the parent, is the chorion, which varies in different animals in its means of effecting this object ; existing either in the form of a vascular membrane, with villous collections of vessels on its surface, and corresponding villi in the uterus, as we see in the *solipeda*, and more distinctly in the *swine ;* assuming a cotyledonous form, as we see in the cup-like bodies of the *ruminantia*, or expanding into the most perfect form of placenta, as exemplified in the human subject. In the human ovum, during the first weeks after impregnation, we find a number of very delicate vessels running on the whole outer surface of the chorion, exhibiting a flocculent and vascular appearance ; after which period these vessels are observed to extend over a surface relatively smaller as the pregnancy

becomes more advanced. In the second month, this general flocculent vascularity having diminished much in the extent of surface over which it was observable, the decidua, or uterine membrane which covers it externally, becomes united to the floating extremities of its vessels, and by such union at this vascular part, the placenta is formed, which will thus be seen to consist of two parts, the fœtal, or that formed by the extension of the vessels of the chorion, terminating in the umbilicus of the fœtus ; and the maternal, or that formed by the decidua with its reflexa, continuous with the uterine vessels of the mother, by which this latter membrane, (the decidua,) has been produced. These two membranes, which enter into the composition of the placenta, are for some time separable, the one from the other, but afterwards become so closely connected that it is impossible to separate them without destruction of parts. Doctor Hunter mentions his having effected this so late as the fourth month after impregnation.

The placenta, having been thus formed, bears a greater proportion in size to the fœtus and uterus in the early, than in the latter months of utero-gestation. In the second month it extends over a space nearly equal to one half the surface of the inner wall of the uterus ; in the third it continues to decrease in extent, but

evidently increase in thickness, and becomes more compact in structure; and in the last month it covers but about one-fourth of the inner wall of the uterus. It is generally of an irregularly circular, but occasionally a slightly oval figure, subject however to variation.

If we examine the uterus of a woman lately delivered, we shall find at some part of its inner wall a raised uneven patch, smaller or larger as the uterus is more or less perfectly contracted; and which, on closer inspection, we shall discover to consist of a number of projecting extremities of vessels, some filled with grumous clots, others gaping and empty. This is the portion of the uterus to which the placenta had been attached, and these the mouths of the vessels which carried the blood to and fro, between the uterus and placenta during the period of gestation. Let us now make a section of the uterus, and observe what a difference of structure exists between that part where the placenta was attached, and the remainder. The placental portion, as we may henceforth designate it, appears to consist of a congeries of vessels, tortuous, ramifying, and expanding into cells or sinuses, whilst the remaining part exhibits the parenchymatous structure of this organ, with merely occasional vessels interspersed. This placental, or extremely vascular structure, is confined to a cir-

cumscribed portion, changing, not gradually, but abruptly into the ordinary uterine texture. In the neighbourhood of the ligaments, at the lateral parts of the uterus, we will also find a more full distribution of vessels, even when the placenta is not attached to this part, as the principal vessels which connect the uterus with the maternal system pass into it here. With this anatomical view of the parts before us, we shall be better able to understand the utero-placental circulation, which becomes a matter of consequence here, as upon it depends the phenomenon engaging our attention.

It is not my intention at present to enter into any discussion on the subject of the connexion existing between the mother and the fœtus, upon which so much has already been said and so little proved. I shall confine myself merely to the description of the circulation in this system, as established by anatomical observation and experiment. The placenta, as we have seen, consists of two parts, a fœtal and maternal, which are so far distinct and unconnected that we have failed in our endeavours, even with the assistance of the finest injections, to trace any vascular communication between them. The blood passing from the fœtal heart through the umbilical arteries to the placenta, and returning through the umbilical vein constitutes the fœtal

circulation, whilst the maternal is made up by the blood passing from the hypogastric and spermatic through the uterine arteries, which ramify extensively, anastomosing freely with each other and also with the uterine veins,and converging towards the placental portion of the uterus, where they are collected in great numbers. This part, as we have already seen, almost consists of a tissue of vessels (arteries and veins :) a number of these arteries are continued into the maternal portion of the placenta, whilst others terminate in the venous sinuses, which are at this part so abundant, and of such a peculiar formation : the blood which these contain is discharged into the sinuses, whilst that which flows through the arteries into the maternal part of the placenta having circulated there, finds it way, according to Hunter,* into an intermediate cellular structure, afterwards returning into the uterine sinuses by the veins of the maternal part of the placenta and uterus. Dubois† in 1790 exhibited, at the "Academie de Chirurgie," the pregnant uterus of a woman who had arrived at the seventh month, having previously injected the crural arteries and veins of different sides, and the injection succeeding well, he discovered on

* Anatomical Description of the Human Gravid Uterus and its contents, by Wm. Hunter, M. D.

† Journal des Découvertes, &c. par Fourcroy, No. 8. p. 207.

the internal surface of the uterus, an infinite number of flexuous arteries rising and passing into the spongy substance of the placenta. Albinus * appears to have fully understood this distribution of the uterine arteries, passing into the maternal part of the placenta, and has represented them as accurately as Hunter.†

To return now to the phenomenon of placental soufflet. This I conceive to depend on the transmission of blood through the arteries of that part of the uterus to which the placenta is attached, and which we designate the placental portion, deeming it at the same time possible that the passage of the blood through the arterial tubes and cells of the maternal part of the placenta above described, may have some effect in the production of it. Lest this should appear a matter of assumption on my part, I shall enumerate the facts, founded on cases, observations, and experiments, which led to this conclusion.

The placental sound is present in pregnant women, only when the utero-placental circulation exists, and ceases when the vessels which serve to sustain this function are no longer per-

* B. S. Albini Uteri Gravidi, Tab. vii.

† Anatomia Uteri Humani Gravidi, Hunter, Tab. xix.

vious. A fact which we can ascertain by examining a woman shortly before parturition, when we observe this phenomenon in full energy; and again, when the uterus is empty and perfectly contracted after delivery, or when the fœtus having died *in utero*, an obstruction in this system of vessels is produced, in all which cases not the slightest vestige of the phenomenon can be discovered. The sound is distinctly periodical, alternating with intervals of cessation, and corresponding in every case with the mother's pulse at the wrist, with which it is synchronous. The sound is always heard in that part of the uterus where the placenta is or has been attached, a fact which I have frequently proved by manual examination, when it has become necessary to introduce the hand into the uterus to remove the placenta, as well as by ocular demonstration after death. The circumstance also of this sound existing in the cow, the only animal in which I have as yet detected it, exhibiting similar characters to those already enumerated, goes a considerable length in proving that it depends on the utero-placental structure, which we have already seen in this animal, approaches near to that of man. Add to the above the anatomical structure of this part of the human uterus, as already explained, so peculiar and unlike any other structure in the body, the further consideration of which we will

enter on presently, when we come to consider how this phenomenon is more immediately produced.

To avoid unnecessary repetition, I omit here giving the cases by which these facts were proved, as we shall instance a sufficient number in the course of this treatise: of their accuracy however, every individual engaged in midwifery practice, can satisfy himself. Granting then their correctness, we may justly conclude, that they prove the dependence of this phenomenon, first, on the transmission of blood; secondly, on this blood being transmitted through arterial, and not venous tubes; and lastly, these tubes being situated at that part of the uterus where the placenta is or was attached. It could not possibly owe its existence to the transmission of blood through the arterial system of the fœtus, the fœtal part of the placenta or umbilical arteries, as the periodic impulse existing in the circulation of the blood through these, nearly doubles in frequency that of the phenomenon in question, or the pulse at the wrist of the mother in ordinary cases; and independent of this circumstance, the passage of blood through them exhibits distinct indications. With less reason could it be supposed to depend on the passage of blood through venous tubes, either of the mother or fœtus, the umbilical vein, or veins of the

placenta, as in all these the motion is that of a continuous stream, devoid of any periodic impulse.

While stating the cause of the placental sound, it will be observed that I have mentioned the possibility of the transmission of the blood through the arteries of the maternal part of the placenta, assisting in its production. I say possibility, because from the observations I have made on the subject, although I think there is strong reason to suppose such to be the case, yet the point still admits of some doubt. What affords a strong presumption in favour of this opinion is, the change of character which the sound undergoes when the circulation is confined to the arteries of the placental portion of the uterus, without entering the placenta, as in those cases where the phenomenon is observed to continue after the expulsion of this body, or the death of the fœtus in utero when the placental circulation has ceased; for the death of the fœtus in utero, and consequent cessation of the fœtal circulation, do not of necessity cause the discontinuance of the soufflet, although they alter its characters. Neither does the sound invariably cease, (as we might be led to conclude from Lænnec's* statement on the authority of

* Lænnec by Forbes, 2nd Ed p. 704.

Dr. Ollivry,) on the separation and expulsion of the placenta; but provided the uterine arteries at this part, from imperfect contraction of the uterus, continue pervious to blood, a soufflet will still remain, abrupt however, of short continuance, and wanting the lengthened terminating whiz, observed in the perfect placental soufflet. Therefore, when the sound continues after the birth of the child, we must conclude that the uterus is imperfectly contracted; and in an inverse ratio to the degree of its contraction, will be the extent of calibre of these vessels pervious to blood, and consequently the intensity of the sound arising from its transmission. In this state of incomplete contraction, there is an actual closing up of the smaller vessels, or obstruction to the passage of blood through them, whilst there is a diminution of calibre in the larger ones, by which means is lessened the quantity of blood transmitted, and the number of conduits it has to pervade, and of course the intensity of the phenomenon depending on these. Again, the perfect contraction of the uterus so completely compresses the system of vessels, as to render them impervious, and thus the cause, (the circulation) being removed, the soufflet ceases. In illustration of these statements I may mention the following cases. Nov. 26th, 1829, I was called to a lady in Britain-street who had been in labour for some hours. I found

the funis protruding beyond the external parts, void of pulsation, and quite cold to the touch. I learned from an experienced midwife in attendance, that the funis had been expelled suddenly, with the discharge of the liquor amnii an hour before; the pulsation in it was at that time observable, but ceased shortly afterwards. Under these circumstances all hopes of saving the child, either by returning the funis or hurrying the delivery, being at an end, I proceeded, while the patient was at rest between the pains, to observe what indications the stethoscope would afford. On a careful investigation no fœtal heart's action could be detected. The placental sound was, however, distinctly perceptible at the upper part of the uterine tumor, and towards the left side: it was full, but shorter, more abrupt in its termination, and wanting the sibilous whiz already spoken of, as characteristic of the perfect utero-placental circulation. In the course of two hours a dead born female child was expelled, exhibiting every appearance of recent vitality.

This case proves, first, the continuance of the placental sound after the fœtal circulation has ceased; secondly, the modified form which it then assumes; and lastly, goes a considerable length in support of the opinion, that although the sound owes its existence principally to the passage of blood through the arteries of the pla-

cental part of the uterus, yet that, to produce the perfect soufflet, it is necessary the blood should also traverse the placenta itself. Here the fœtal circulation must of necessity have ceased, yet the blood continued to pass through the uterine vessels which had supplied it. How then are we to account for this? We must recollect that the maternal circulation, whatever connexion may exist between it and that of the fœtus, is, strictly speaking, independent of the latter, and if we may use the expression, complete in itself. Dr. Hunter* says, "while the placenta remains adherent to the uterus, any injection made by the uterine arteries fills not only these vessels, but also the cellular part of the placenta; and if we continue the operation, the injection returns from the cells into the veins of the uterus, and fills them likewise. The same thing happens, but in an inverted order, when we begin by injecting the veins." Thus then, the circulation in the mother and maternal part of the placenta, being independent of that of the fœtus, we can understand how a phenomenon produced by the former should exist where the latter has ceased. From this, however, we might be led to expect that the sound should exhibit the same characters, whether the fœtus be dead or alive. In forming such an opinion we

* Page 46.

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should, as the further examination of the subject will shew, fall into error. Another case bearing on this point is that of Helen Lacy, who was delivered in the hospital, October 18th, 1829, of a girl, her ninth child, having been nine hours in labour. She complained much of after-pains. On seeing her forty-four hours after delivery, the uterus was to be felt, large, full, and rising high in the abdomen. On applying the stethoscope, an abrupt but distinct soufflet was observed by Dr. Collins, my late colleague Dr. Darley, and myself, occupying a situation on the left side, and near the fundus of the uterus. I had examined this patient previous to delivery, and detected in this situation the placental soufflet, sonorous and partaking of the sibilous character. Here the sound was in every respect similar to that which we had in the former, or funis case, and in this, there can be no question as to the non-existence of either fœtal or placental circulation.

The conclusion deducible from these two cases is, that the sound is altered by the change in the circulation of the blood, which, in place of passing through the arteries of the placenta, (from the absence of the organ in the one case, and although present in the other, from its being unnecessary and perhaps impervious,) is taken up by the anastomosing vessels, here so numerous,

and carried direct to the venous sinuses and veins of the uterus, and thus conducted back to the maternal system. This will explain the reason why, in cases where the child has been for sometimes dead in utero, as where a syphilitic taint exists in the parent's system, the delivery is effected and the placenta expelled, often without hemorrhagic discharge; as in such the uterine circulation, independent of the placental, has had time to establish itself. The placenta also, when expelled, exhibits here an exsanguineous and altered appearance, indicating its not having recently been in the discharge of its functions. I think it probable, that cases do occur in which the circulation between the uterus and maternal part of the placenta continues, if not unimpaired, at least still to be kept up after the death of the fœtus. What induced me to suppose this, was observing the soufflet not so completely altered in its characters in some cases where I could not detect the fœtal heart's action, and finding, on delivery, the placenta loaded with fluid blood, whilst at the same time there was considerable sanguineous discharge expelled with it from the uterus, and the children appeared, from the marks of putrescency they exhibited, to have been many days, if not some weeks dead. A case of this kind having occurred in the hospital whilst preparing this Paper for publication, I am induced to mention it here.

June 26th, 1830. Mary Cody, in labour for thirty hours, the head having made no advance for the last twelve. On applying the stethoscope no fœtal heart's action could be discerned; the placental sound was, however, audible in each iliac region, less abrupt, and approaching more to the natural soufflet than in those above described. On a vaginal examination the bones of the head were found much separated from each other by hydrocephalic distention, whilst copious fœtid discharge exuded. The patient becoming much exhausted, and as there was no object in retarding the delivery on the child's account, the crotchet was had recourse to. After lessening the head, the uterus, which contracted quickly and forcibly in expelling the child, again became relaxed, and so copious a hemorrhage set in as to render the introduction of the hand necessary, when I found the placenta stretching from right to left, and attached low in the uterus to its posterior wall, each of its borders corresponding to that part of the iliac region where the sound had been observed. The placenta, on being removed, was fully distended with blood, and appeared to have lately been in the discharge of its functions, although from the putrefactive change the funis had undergone, the child must have been dead at least twenty-four hours.

From these observations, let it not however

be supposed that the placental sound is always observable, even of this modified character, where the child is dead, or after the expulsion of the placenta, as such is not the case. We will frequently find that in the former, or where the child is dead, no such sound will be heard, owing to the vessels of the placental part of the uterus becoming impervious, whilst it is only in the latter where the uterus is badly contracted, that it is to be met with after the expulsion of the placenta.

Before concluding this part of the subject, I will bring forward the objections which have been urged against the dependence of the phenomenon of soufflet on the passage of blood through the arteries of the placental part of the uterus, as formerly stated by Kergaradec, and insisted on in the present treatise. Dr. Haüs,* speaking of this sound, says, "It cannot be in the uterine arteries, else, why the intermission? Why too is it often perceptible in the whole of the uterus? It cannot be in the placenta, because as it agrees with the pulse of the mother, her heart should act directly on the placenta, which it cannot do, as it has been proved by injection that there is not any connexion between the arteries of the

* Die Auscultation in Bezug auf Schwangerschaft. von. Dr. C. J. Haüs, p. 51. Wurzburg. 1823.

pregnant uterus and the vessels of the placenta." In another part of his work he states as his opinion, that the phenomenon in question has its seat in the aorta or iliac arteries, and supposes that altering the position of the child would remove it.

In answer to these objections I would merely state, that as to the intermission, with equal justice may we deny soufflet being produced in the aorta, iliac arteries, or any other artery in the body, as if there be an occasional intermission of the phenomenon, which we know to be the case, and as he even admits there is in these, why may not there be also an intermission, if the soufflet have its seat in the uterine arteries or those of the placenta? As to the fact of its being often perceptible over the whole uterus, if this gentleman had paid the necessary attention to the practical part of the subject of which he treats, and founded his opinions on observation, and not on abstract reasoning, he would have discovered, that in those cases where this sound is perceptible, as he says, over the whole uterus, the placenta is attached to the anterior wall of this organ; also, where the reverse is the case, it is connected posteriorly. Had he in such attended to the position of his patient, and examined minutely and carefully in the lumbar and iliac regions, he would have been less frequently

disappointed in his attempts to detect it, than he appears from his cases to have been. Had this author, in support of his opinions, rested satisfied with advancing arguments which, to persons capable of judging, merely tended to display want of observation, I should have felt myself called upon to leave the matter without comment; when, however, I find him, in the succeeding paragraph, state in unequivocal terms, that "there is no connexion between the arteries of the pregnant uterus and vessels of the placenta," thus denying, on what ground I know not, a fact not passively admitted, but repeatedly proved by experiment, and its accuracy borne testimony to by some of the ablest anatomists Europe ever has known, I should feel myself much to blame did I allow it to pass without at least expressing myself surprised at such a line of argument. But with regard to the explanation he would substitute, that of the sound being seated in the aorta or iliac arteries, how he does not attempt to explain, but forms this conclusion because he thinks that altering the position of the child would remove it. Why then did he not put this to the test of experiment if it appear so simple a matter as he states? I can answer for him, that I have done so repeatedly, and without its being attended, even in one instance, with the result he anticipates. Dr. Haüs* ad-

* Haüs, p. 52.

duces a quotation from Mr. Dugés in support of his objections, and I really confess myself at a loss to understand what Mr. Dugés means, when he says "The placenta is not like the heart, an organ that alters its volume by contraction, and consequently cannot produce any pulsation. The blood must circulate in it as it does in the capillaries that convey it there, in a constant stream." Either we must conclude, that he too is ignorant of the fact of the double system of vessels in the placenta, and the direct continuation of the arteries of the uterus with those of the maternal portion, as established by Hunter, Albinus, Dubois, Moreschi, and with the accuracy of which, any one who will be at the trouble to inject the uterus and placenta of a pregnant female can satisfy himself. Or that, admitting this, he denies the influence of the heart's action, and the *vis a tergo* propelling the blood beyond the uterine arteries into this organ. He speaks of a circulation resembling that in the capillaries, although vessels of a considerable size can, without difficulty, be traced into its substance. Hunter,* speaking of the vessels passing between the uterus and placenta, says, "They are as demonstrable in a proper subject as any vessels in the body, not only by injection, but in a fresh subject without any artificial pre-

*Anatomical Description of the Gravid Uterus. Hunter, p. 45.

paration; and any anatomist who has once seen and understood them, can readily discover them on the surface of any fresh placenta. The veins, indeed, we find, have a distinct appearance from their tenderness and frequent anastomosis, so as to look a good deal like irregular, interstitial, void spaces. The arteries, which generally make a snail-like convolution or two on the surface of the placenta, and give off no anastomosing branches, are more distinct." The observation which Mr. Dugés makes, as to the placenta not altering its volume by contraction, is immaterial; as granting the anatomical connexion between the uterus and placenta, which cannot be denied, I conceive that if the blood pass per saltum through the uterine arteries, it amounts almost to a moral certainty, its passing in the same manner into the maternal part of the placenta.

Of the practical benefits to be derived from a knowledge of the phenomenon of soufflet, the most important is that of the assistance which it will afford us in the detection of pregnancy, when taken either singly or in conjunction with the fœtal heart's action. I should, and perhaps with justice, bring upon myself the censure of the profession, and place my knowledge of practical midwifery in a very questionable point of view, were I to join with a friend of mine who

has lately published some cases, wherein he succeeded in detecting pregnancy by the assistance of the stethoscope, and designate auscultation "the only unequivocal evidence of pregnancy." I should thus, instead of gaining confidence for this, bring it into disrepute, even as an adjunct to those means already relied upon ; nor is it my intention to undervalue its merits, as a diagnostic agent, in cases attended with difficulty and obscurity. Such, we are to recollect, are merely exceptions ; pregnancy being ordinarily ascercertained, without difficulty, by the means at present in use. We have, unfortunately, no want of facts on record, and even occurring within our own observation, some of them as melancholy in their consequences to the patient, as destructive of the peace of mind and character of the medical attendant, which proves that to arrive at accuracy of diagnosis, in cases of doubtful pregnancy, we yet stand in need of some assistance. That auscultation will go a considerable way in affording us this, I have no hesitation in stating, nay, I am even so sanguine in my expectations of the benefits to be derived from it in this respect, as to hope, that in ordinary cases, it may with propriety be substituted for vaginal examination, which although an operation often necessary, and one that it is not at all my intention to throw any obstacle in the way of, yetevery practical man will admit, that

a substitute for this would be a great desideratum.

When a perfect placental soufflet exists in any part of the abdominal tumor, particularly if the fœtal heart's action also can be detected, we may pronounce the woman pregnant. When it cannot be discovered, and that the fœtal heart is perceptible, there is reason to conclude that the placenta is attached to the posterior wall of the uterus. This, however, is a rare occurrence; and when we do not succeed in our examination of the anterior part of the abdomen, by causing the patient to alter her position, and exploring the iliac and lumbar regions of either side close to the ilium and back towards the spine, we shall very seldom indeed fail of hearing it. We have already seen that intermissions will occur in this phenomenon, upon what cause depending I cannot say. Kergaradec endeavoured to explain them by the change of position assumed by the fœtus, with regard to the placenta: how this will produce the effect he does not shew, possibly it might do so if the fœtus, in altering its position, so pressed against the placental part of the uterus, as to prevent the transmission of blood through its vessels. In such cases the cessation of this sound is not permanent, therefore by repeating our examination we will succeed in discovering it. I should mention that

uterine action suspends it in some altogether, whilst in others it converts it, during the pain, into an abrupt sound or pulsation, and these are almost the only cases in which I have observed this omission to occur.

Where we can with facility ascertain the action of the fœtal heart, as in the advanced stages of pregnancy, discovering the placental sound, although it is satisfactory as an additional diagnostic, does not become an object of the same importance as in the earlier stages, where the heart's action being weaker, frequently eludes our observation: it is also of consequence in cases where the uterus contains a dead child, which are often most perplexing in their nature, from the contradictory symptoms that coexist. Pronouncing decidedly in cases of doubtful pregnancy, before the period of quickening, has always been looked upon by practical men as a hazardous undertaking; and although I do not mean to say that we will now, with the assistance of auscultation, be enabled to pronounce with certainty in every case before this period; I with confidence state, that where we detect a placental soufflet, which in the great majority of cases is practicable at a considerably earlier period, taken in conjunction with the other symptoms, it will tend much to strengthen the opinion of the presence of this state. The co-exist-

ence of the fœtal pulsation with the soufflet, of course, decides the question; but with regard to the latter, taken separately, I will even go so far as to say, that were all the other symptoms of pregnancy absent, and that this sound could be distinctly perceived, I should at least withhold my opinion until a sufficient time had elapsed to place the matter beyond a doubt. In support of this assertion, I will mention a case which occurred to me about twelve months since.

I was sent for one morning by a lady, who came over clandestinely from the sister kingdom. The statement she gave me was as follows. She had for some months been in the habit of receiving the attentions of a gentleman for whom she had formed an attachment, but unfortunately fell a victim to her father's caprice, who after countenancing this attachment, suddenly withdrew his consent to their union, and insisted on her marrying an individual of his selection. Ten weeks had elapsed from the time of her first giving way to illicit intercourse, when she consulted me; during which two monthly periods had passed without the usual menstrual discharge. About ten days before my seeing her, in consequence of some active exertion, a discharge of blood took place from the vagina which lasted for a few days. Her father

urged her compliance with his wishes, and she dreading to enter the marriage state whilst there was a possibility of her being pregnant, consulted a medical man of eminence, who after the usual investigation, pronounced that such was not the case: impressed, however, with a painful foreboding of the true nature of her state, although she had no further symptom of pregnancy than that already mentioned, she determined on obtaining further advice, and under pretence of visiting a friend in the country, came over to Dublin. On the most accurate examination, I could ascertain no further grounds for suspicion, than the presence of a remarkably distinct soufflet, which was discoverable on pressing the end of the instrument in the pubic region over the uterus. Relying on this, I gave her to suppose that there was a strong likelihood of her being pregnant, although I could not actually pronounce such to be the case. The result fully justified the confidence I reposed in this as a means of diagnosis; for exactly nine months from the period when she calculated, she gave birth to a child.

I have not succeeded in detecting the placental sound in any case until after the second month from impregnation, but have frequently done so in the tenth, eleventh, and twelfth weeks.

Aug. 15th, 1829. A woman named Devereux, who had been under my care in labour eighteen months before, called to consult me for a slight attack of pneumonia. She mentioned that her menses had not appeared for the last two months. I therefore examined her with the stethoscope, and detected clearly the placental soufflet, although no uterine tumor was observable. Dr. Collins, who also examined her, expressed his astonishment at its distinctness at that early period. I gave this woman reason to suppose it possible that she was pregnant, of which she had not the slightest anticipation. Its accuracy, however, was attested by her coming into hospital on the 7th of March, 1830, in labour, and being delivered of a living child the day following, *exactly twenty-nine weeks from the period at which we had examined her.*

To this it may be objected, that this woman went beyond forty weeks, as the birth of the child was the only means I had of calculating the period of impregnation ; *but I could adduce several cases in which I detected it at an equally early period*, in all of which, it is not likely, that the mothers should have carried their children beyond their natural time.

I could have no difficulty in multiplying cases where I have succeeded in detecting preg-

nancy by the assistance of the stethoscope, but this I deem quite unnecessary ; as although, on its first being brought before the public attention of the profession on the continent, there were some found to object to it as inefficacious and unworthy of countenance, yet these have altered their opinions, as every one must, who will take the trouble to give it a fair trial, and learn to estimate its advantages. I will, however, mention one case in which the placental sound, particularly, was of importance in ascertaining the existence of this state, and as the nature of it was such, that forming an erroneous judgment upon it might have been attended with the worst possible consequences, in a practical point of view, I think it the more worthy of our attention.

Feb. 1830. I was requested by my friend Mr. Dwyer, at that time attending the hospital, to see with him a case of dropsy ; he said he had some reason to suppose the woman pregnant, but could not quite satisfy himself on the subject. I therefore visited her in company with this gentleman, and Dr. Whitestone. Her abdomen was enormously distended, and fluctuation very evident : the extremities and lower part of her body were œdematous. She stated that she had been attacked with general dropsical symptoms, preceded by extreme debility

whilst nursing her last child, about a year and a half previously, but had experienced no local distress. She had been living with her husband during this time; her menstrual discharge had been very irregular, being absent for several months at a time, and again returning, she did not observe it at all since August last; did not quicken as usual in her former pregnancies, but thought she had lately observed something like the obscure motion of a child. Nothing satisfactory could be ascertained from a vaginal examination, from the extremely swollen state of the parts, neither could the most accurate abdominal examination with the hand, enable us to detect any resemblance to an enlarged uterus. The conclusion, therefore, that we arrived at was, that with the ordinary means it would be impossible to pronounce this woman pregnant. Recourse was then had to the stethoscope, when the placental soufflet, full and distinct, was without difficulty observed by all, extending high up on the right side of the abdomen; the fœtal pulsation, although it could not then, was afterwards discovered remarkably small and obscure. At times this could not be heard from the distance at which it lay from the surface, both the cavity of the abdomen, and as it afterwards appeared, the uterus being distended with an immense quantity of fluid. The placental sound, on the contrary, from the parietes of the uterus

approaching so much nearer the surface, was quite audible, and continued so throughout. As I had it in contemplation to perform paracentesis, I begged Dr. Collins and Mr. Houston to see her with me, who also satisfied themselves as to the phenomena above stated.

She was afterwards brought into the Lying-in Hospital, where, in consequence of the extreme difficulty of breathing and exhaustion which set in, it was deemed expedient by Dr. Collins, in consultation with Drs. Labatt and Colles, that premature labour should be induced, which was carried into effect by rupturing the membranes, the os uteri having at this time become accessible, and shewing some inclination to dilate, she was delivered in twelve hours of a living child, about the seventh month, which survived its birth forty-eight hours. The mischief which might have arisen from ignorance of the real nature of this or similar cases, is self-evident and requires no comment.

I shall, for the present, defer the further consideration of auscultation as a means of detecting doubtful pregnancy, as this subject will, perhaps, at some future period occupy our attention, when treating of the fœtal heart's action. And what, may I ask, can be a more satisfactory proof of the presence of a fœtus in the uterus,

than the indication afforded by the motions of the heart of the individual whose existence we wish to ascertain.

It is necessary to mention to those unacquainted with the stethoscope, that they may be deceived by other sounds, either from their resemblance to the placental soufflet, or the effect they have in concealing this. The respiratory murmur is sometimes conducted from the lungs along the thoracic to the abdominal parietes, and may embarrass, but can scarcely deceive us, particularly if we be acquainted with or prepared to expect it. The sonorous rale resembles somewhat the placental sound, and this I have frequently met with conducted over the abdomen, in the same way as the respiratory murmur. We can invariably discriminate this by its corresponding in frequency with the respiration, as calculated by the heaving of the chest, whilst the placental sound is synchronous with the pulse at the wrist; or in other words, we ought, generally speaking, to count three placental for one respiratory or sonorous rale. By attending to this, unless the respiration be very rapid indeed, it can scarcely lead us astray; but tracing the sound along the abdomen, which becomes more distinct the nearer you approach the chest, will in these cases set the point at rest. Were we merely satisfied with hearing the sound,

without attending to its periodic recurrence, and relation to the pulse, we might possibly be confused by the intestinal murmur, or the noise produced by the passage of wind from one portion of the intestines into another. We should therefore keep the ear steadily applied for some time, and at the same moment feeling the pulse, observe whether the sound we hear correspond with it.

"Bruit de soufflet" occuring in the abdominal aorta or its great branches, simulates the placental sound more than any of those mentioned; in distinguishing which, the pulse will afford us no assistance, both being synchronous with the systole of the heart. Fortunately, meeting with such cases is rare,* as although I have frequently intentionally produced a bruit, by pressing the end of the instrument on this vessel, yet amongst the number of patients I have examined whilst attending to this subject, I have met with but one case where a sound resembling the soufflet, from a morbid cause, was observable. The case was one of considerably enlarged liver, the pressure from which appeared to have this effect. We shall be enabled to distinguish "bruit de soufflet" when it so occurs, arising either from

* "Bruit de soufflet" and fremissement are very seldom present in the abdominal aorta.

aneurism, hemorrhage, hysteria, or nervous states of the system, by its concomitant symptoms; and in the latter cases, to use the words of Lænnec,* "When the bellows-sound exists in the aorta, particularly the ventral portion of it, there is always a marked state of disorder in the nervous system, viz., agitation and anxiety, faintings more or less complete, and produced by the slightest causes, and an habitually quick pulse." In addition to these, I may mention the fact, of the placental soufflet being heard indifferently over the abdomen, and not confined to the immediate seat of a large artery; also the nature of this sound, which to persons at all conversant with it, is quite distinct and easily recognized.

From the soufflet produced by the pressure of a tumor or the instrument, it can readily be distinguished by its remaining, when such pressure is removed, (as by raising the tumor with the hand, or altering the position of the patient,) and observing whether it is merely confined to the situation of a large artery, or is audible over a more extended space.

Another advantage of importance we derive from our knowledge of the placental sound, is

* Lænnec, by Forbes, 2nd Ed. p. 698.

its assisting us in pronouncing on the life or death of the fœtus in utero. The benefits which accrue to us in practice from this are abundantly obvious, and extend not merely to the satisfying our own mind and that of our patients, but also to the actual preservation of life. Every midwifery practitioner will acknowledge, that though he is always guided as to the length of time he will attend the issue of a tedious labour, by the state of the mother, and that her safety is his first consideration ; yet a period of some, nay, many hours will elapse, in which, were he satisfied of the death of the child, he would not delay a moment in effecting the delivery, and by so doing, I doubt not, the lives of many mothers, whose loss creates a chasm in society, and tends to bring a disgrace on the obstetric art, might be saved, when no detriment could accrue to the already lifeless and innocent cause of its mother's destruction. Of the benefit derivable from auscultation in this respect, I cannot speak in too high terms, and that from having seen it extensively put to the test in the Dublin Lying-in Hospital, where about two thousand five hundred patients are delivered annually, and of course frequent opportunities afforded of proving its utility. We have elsewhere treated of the manner by which the placental soufflet affords us an indication of the

death of the child, viz., either by ceasing entirely after having been previously heard, or having its character altered, from the continuous murmur with its lengthy sibilous termination, to an abrupt, defined, and much shorter sound. This, together with the impossibility of detecting the fœtal heart's action, particularly if such had been before observed, places the fact of the child's death beyond a doubt.

Those already stated are the applications of the stethoscope in obstetric practice, which I look upon as incontrovertibly established. I shall now briefly mention some other facts, which I arrived at, in the course of investigating this subject, as they may prove interesting in a pathological point of view; leaving it, however, as a matter for future observation to determine, whether they may afford us any hints of practical utility.

In ordinary cases of properly conducted labour, it will be recollected, that when the uterus has expelled its contents, it contracts firmly, by which means the vessels which carried blood previously are now rendered impervious, and that if in such we apply the stethoscope, no soufflet will be heard, the cause producing it no longer being present. It has, however, already been

observed, that the the soufflet in some cases continues after the expulsion of the placenta, and the conclusion we then arrived at was, that in such, the vessels of the placental portion of the uterus continue more or less pervious. The following case affords proof this fact.

Oct. 18th, 1829. I was called up with Dr. Cuming, (at present of Armagh,) to see a woman named Kennedy, delivered about an hour before by a midwife, who not finding the placenta come away soon enough, pulled so forcibly by the funis as to break it, leaving the after-birth in the uterus. As this organ seemed moderately contracted and no hemorrhage present, it was unnecessary to interfere further than skirting the abdomen tightly. Whilst waiting for its expulsive efforts I applied the stethoscope over the uterus, which was now quite free from soufflet. A few minutes afterwards it became enlarged and flaccid, I again applied the stethoscope, when the placental sound could be observed at the left side, near the fundus. On grasping the uterus and inducing it to contract, some blood was expelled from the vagina, and the sound altogether disappeared. It relaxed and contracted in this way two or three times, each relaxation being denoted by the presence of the soufflet, and followed by the expulsion of blood in its contraction, until at length it became

unsafe to remain longer without interference. The hand was introduced, and the placenta removed, which was partially adherent to that part of the internal surface of the uterus, corresponding to which we had observed the sound externally.

I have since observed similar cases occur in the hospital, and also others in which the hemorrhage took place after the detachment of the placenta.

Could auscultation afford us any service in those cases of hemorrhage, where the attendant cannot satisfy himself of the mischief that is going on, in consequence of no external discharge being present, the distention of the abdomen from air or fat rendering it impossible to ascertain whether the uterus be perfectly contracted, and where the disturbance arising from the unnecessary introduction of the hand, is if possible to be avoided ; or in the cases spoken of by the lamented Dr. Gooch,* in which he describes a means of quickly checking hemorrhage occurring after the removal of the placenta, by making the hand, when introduced, act as a tourniquet as well as a stimulus, by

* An account of some of the most important diseases peculiar to women. Dr. Robt. Gooch, p. 35.

compressing firmly the part of the uterus to which the placenta had been attached, between it, and the other hand applied to the outside of the abdomen?

I have frequently observed the soufflet in in after-pains, a case of which I have already given. The reason of its occurrence here is obvious enough, when we recollect that after-pains depend, in a great many cases, on spasmodic contraction of the uterus, to expel clots allowed to form there by the previous inert state of the organ. The uterus in such is full and distended, rising above the pubes, and if we apply this stethoscope during a pain, either occurring of itself or brought on by artifical stimulus as pressure, the sound which a moment before was quite distinct, is now converted into a pulse, or disappears, returning again on its relaxation.

In the Cesarean section, (an operation fortunately so rare in this country,) the soufflet may act as a guide in enabling us to avoid wounding the large vessels; and in tedious labours, with deformity of the pelvis, where such is had recourse to, hemorrhage can ill be endured.

See case by Dr. Henderson,* in which the

* Ed. Med. Journal, vol. xviii. p. 105.

placental part of the uterus was cut through, and this organ removed, before the child, which proved fatal, as he states, from the shock and hemorrhage.

OBSERVATIONS

ON

SOME OF THE AFFECTIONS

OF

THE FINGERS AND TOES,

ATTENDED WITH

FUNGOUS GROWTHS,

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The extremities of the fingers and toes are occasionally the seats of diseases, productive of great anguish and pain to the patient, and very tedious and difficult in their cure; and when it is remarked, that in some of the oldest writings on medical subjects, tolerably accurate descriptions of these affections are to be found accompanied by suggestions as to their mode of treatment, not materially differing from those adopted in more modern days, we may be permitted to express some surprise that so little had been

done, in such a length of time, for the alleviation of human suffering.

Inasmuch as they do not actually tend to destroy life, these diseases may be placed among those possessing a minor importance, but comparing them with any other occupying a similar extent and situation, they unquestionably do not yield in the agony they produce; and their apparent insignificance adds largely to the disgrace of surgery, if it is found to be incapable of removing them. Of later years, however, considerable attention has been devoted to these affections, and to persons who have perused Mr. Wardrop's excellent observations on Onychia, and the Paper published by M. Royer Collard in the year 1826, little might appear to remain to any future observer, and the treatment of those fungoid diseases hitherto so obstinate, would seem to be established on the most safe, expeditious, and successful basis.

Unwilling to set forth a false claim to originality, I confess that the ground-work of any knowledge I may possess with respect to these diseases, has been formed from the study of the authors already alluded to; yet still, if I am enabled to confirm the observations of others so as to establish any given principles of surgery on the basis of experience; if I can offer any

new suggestion as to the pathology of these affections, or draw the attention of the profession *to one particular form of disease*, which, as far as I know, has been hitherto unnoticed, I cannot believe the attempt will be unprofitable, although others may have trodden the same path before me.

The nature of that membrane by which the nail is secreted is of great peculiarity, and must be carefully considered in order to understand the affections about to be described. Its extent, connexions, and uses, while in health, belong to the anatomist; and it will be sufficient to remind the reader, that it is reflected around, or rather behind the root of the nail, at the distance of two or three lines from its posterior border, a circumstance that must be borne in mind in every operation, the object of which is to remove it completely. The chief points worthy of attention in its diseases, are its extreme sensibility, and the disposition it manifests to the production of fungous growths, and by keeping these in view, most of the phenomena attendant on its diseases may be satisfactorily explained.

I believe the membrane or matrix of the nail exhibits three forms of fungoid growth, similar in their appearances, and the distress

they occasion, differing in their situations and the causes by which they are produced. One of these is where the matrix is the original seat of the disease; it occurs most frequently idiopathically, or at least no satisfactory cause can be assigned for its production, but occasionally it seems to arise from some external violence, such as a blow or bruise. The second is that which owes its origin to pressure of the nail on the membrane, or what is termed the nail growing into the flesh. And the third *is a fungous growth of the matrix, symptomatic of, and apparently occasioned by, the existence of an abscess underneath it.* That the two first of these may eventually become the same, or that the constant pressure of the edge of the nail on this most sensible structure will involve it altogether in one mass of disease, cannot be controverted, and then the same treatment will be applicable to both: but if the third or symptomatic species happens to be mistaken for either of them, and the surgeon's attention be directed to the fungus instead of to the abscess, of which it is an indication, months of misery will be inflicted on the patient, who only recovers when the abscess bursts or is opened.

That disease, which for the sake of arrangement I have termed idiopathic, and which is perhaps the true *onychia maligna*, commences

usually at the root of the nail, it may be with a small collection of matter like the cutaneous or superficial paronychia. This bursts, and the posterior edge of the nail is seen detached, while a small pale-coloured and exquisitely painful fungus projects behind it; as the nail is thrown off, the fungus increases, becomes red, and if pressed upon by the nail, the pain is excruciating: sooner or later the entire nail is thrown off, but it does not leave a fungous growth regularly occupying its former situation; the matrix has been secreting its proper material of which the nail is composed, but it has done so irregularly, unhealthily, and in patches, and the irritation and pressure occasioned by those small portions of the nail which usually adhere to the surface by one edge only, produce deep and formidable ulcerations. The extremity of the toe or finger (and the great toe is very frequently enlarged) now appears to be expanded in breadth, with a large ulcer occupying a larger space than that of the former nail. Its surface is irregular, partly fungoid, partly excavated; on it are observed small portions of nail firmly adherent, and which cause great pain if pulled or pressed upon. The ulcer bleeds often, and usually two or three small clots are seen upon its surface: its discharge is not often profuse, but it is glutinous, and the dressings adhere to it. The margin of the sore is elevated, of a dark

red colour, but it does not spread, and having once attained to a given size, something larger than that of the former nail, its progress is checked, and it remains for months in nearly the same condition, occasioning the greatest pain, and rendering the hand or foot, as the case may be, nearly useless.

The circumstances that produce this malignant tendency in the matrix of the nail, have never been explained. It does not appear to depend on any particular injury, for most frequently it seems to occur spontaneously. Often the nail is torn off by violence, and again reproduced without any malignant symptom whatever appearing. It frequently happens that the nail is removed by disease, as for instance in paronychia, and a new one subsequently formed; and in many instances, (one of which shall be hereafter noticed,) a fungoid condition of part of the matrix has existed for weeks without its assuming this malignant character. I am therefore warranted to a certain extent in considering it to be idiopathic, and in regarding it as a morbid alteration of structure, producing, of course, a morbid depravity of function in the part, and requiring the complete removal of the structure, in order to the cure of the disease.

The removal of the diseased or imperfectly

formed portions of nail by evulsion, seems to be one of the earliest modes of treatment adopted, but it could not have proved very valuable, as it contemplated only the material secreted, and not the diseased secreting organ. This latter, too, has been the object of treatment constantly, although perhaps without the rationale of the disease being understood, as we find caustics of every description recommended as applications to the unhealthy surface, without any mention being made as to the nature or properties of the structure so to be destroyed. Thus have the preparations of arsenic and of copper, burnt alum, caustic potass, and even the concentrated acids, been applied for months in vain, whilst still a small portion of unhealthy nail would spring from the posterior part of the ulcer, keeping up continual irritation, and although frequently torn out, as frequently re-appearing: the reason of this is evident; for although these escharotics might remove the diseased surface that is exposed, they did not, and for a considerable time could not, reach that part of the matrix which belonged to the root of the nail, and is protected by the integuments.

It would seem then that this imperfect practice almost proves the nature of the disease to have been misunderstood, for if the object was to remove a structure known to be incurably

diseased, why not employ the simplest and most satisfactory method, namely, the knife? This operation, recently attributed to Dupuytren, was performed in many of the hospitals in Dublin years before the Paper appeared in which the name of that distinguished surgeon is mentioned, and consists in making a deep incision down to the bone, from three to four lines behind the posterior margin of the sore, which incision is carried round it, and then the entire surface is dissected out. The wound is dressed simply with pledgets of lint moistened with spirit and water, and is usually healed in the course of sixteen or eighteen days. But the success of this operation depends on the entire surface being completely removed, for if any portion is left behind, it still retains its quality of secreting nail, and its indisposition to heal; the wound still remains open at that part, nor will it cicatrize until this structure is destroyed either by a caustic or by the knife.

Among the affections of the fingers and toes that require the interference of surgery, few are more troublesome than those alterations of the direction of the nail, which cause it to grow into the flesh; it occurs more frequently in the toe than in the finger, and has therefore been supposed to arise from the pressure of tight shoes; but in opposition to this remark it may be ob-

served, that it occasionally is met with in hospital amongst the very poorest classes who have never worn shoes, and that sometimes, although rarely, it occurs on the finger. This is a very painful disease; it renders the patient incapable of wearing a shoe, and sometimes of walking, and occasionally induces inflammation over the entire foot. If allowed to remain unrelieved, ulceration takes place at the side of the nail where it seems to press upon the soft parts, and a small irritable fungus shoots up overlapping the edge of the nail, which is thus pressed into its substance, occasioning pain, slight hemorrhage, and unceasing irritation. In this condition it may remain for a considerable length of time without the ulcer increasing in size, for the matrix is not universally diseased, as in the former case, but only suffers from the irregular position of the nail: but it is equally painful, the pain more constant, and from the number of operations proposed for its relief, the difficulty of its treatment may be fairly calculated.

From an examination of a number of cases of this description, many of which I was enabled to see through the kindness of some professional friends, who were aware of the interest I had taken in them, I have been induced to believe that a very considerable variety exists as to the nature of these affections. In some it consists

of a thickened condition of the nail, together with its taking a wrong direction in some part, and growing fairly down into the soft parts. This thickening of the nail is very analagous to the formation of corns, rarely produces much greater inconvenience, is seldom accompanied by fungous growths, and is relieved in a manner similar to that by which corns are relieved, by steeping the foot in warm water until the nail is completely softened, scraping down the nail with the edge of a bit of glass, and freeing the toe from the pressure that had stimulated the matrix to too active a secretion of the material of the nail and thus produced the disease. In other forms of this affection the nail is not thickened, on the contrary, its edge sometimes is thinner where it is detached from the subjacent membrane which is pushed against it, becomes fungoid, and thus produces the disease within itself. In this affection the toe positively becomes altered in shape; it is contracted and turned slightly upwards at the side whereon the nail seems to press, and it is this contraction which forces the soft parts against the edge of the nail.

I have been accidentily led to the adoption of this opinion, from having had an opportunity of witnessing a number of cases operated upon in the usual manner, by dividing the nail in its

entire extent, and then tearing out and detaching the offending portion. This operation afforded temporary relief, but in the majority of instances, as the new nail was formed, the disease re-appeared. This led to an examination of the case more particularly, and in every instance I discovered this contracted appearance I have just alluded to. Again, on consulting authors who have written on this disease, I find the operation of removing the nail to have been among those proposed by the earliest practitioners in surgery; and if it was successful, if the disease did not again shew itself as the nail was re-produced, where would have been the necessity of such a multitude of different operations as have been suggested, a new one by almost every practitioner who has directed his attention to the subject. These facts led to a conviction, that the disease did not solely consist in a misdirection of the nail; that the pathology of the disease was not understood, and that the subject was worthy of further investigation.

How this alteration of shape in the toe is occasioned is not easy to determine. If it be true that the disease occurs sometimes in the finger, (which I have not seen,) it is certain that pressure cannot be the exciting cause; besides it is sometimes met with in persons who have not worn shoes, and also if it could be attributed to

the practice of wearing tight shoes, it ought to be much more prevalent, especially amongst young females, who are so particular as to the shape of their feet. Many alterations of shape occur in different parts of the body, without our being enabled to assign any satisfactory reason for them; for instance, few diseases are more common than inversion of the eye-lids, yet an explanation of the cause of entropion is still amongst the problems of pathology. It would be desirable to discover the circumstances that lead to the production of this troublesome affection, in order that they might be avoided; but this will probably prove to be difficult as the change is wrought gradually, and in all likelihood is imperceptible to the patient; failing of this, however, the next point to determine, is, how it may be most advantageously treated.

I feel that it would be superfluous to enter into a discussion on the relative merits of the different modes of operation which have been proposed for the relief of this disease, all of which, with the exception of that of Desault's, consisted either in removing the nail, applying caustics to the fingers, or cutting away a portion of the side of the toe; up to this moment the operation most generally practised is that of splitting the nail, and either tearing off or dissecting away the portion which seemed to grow

into the flesh, and on this I have already remarked, that besides being dreadfully painful, it is generally inefficacious, and in its stead I wish to suggest the adoption of one similar to that employed for the cure of onychia maligna.

It is stated by Royer Collard, that the mode of distinguishing between onychia maligna and the wrong direction of the nail's growth, is, that in the former the fungus appears first at the root of the nail, whilst in the latter it appears at the side. The diagnostic, as far as I know, is a correct one, but is of little importance if the treatment should be the same in both, by extirpating both the nail and its secreting membrane, and that this operation is preferable to the more cruel one of splitting the nail and tearing away the offending portion ; I am satisfied, not only from the results of my own experience amongst the patients of the Dublin General Dispensary, but from the observations which a particular friend, one of the surgeons of the Meath Hospital, has enabled me to make. During the past year and half he purposely admitted several cases of this description, and performed the operation uniformly with the most satisfactory results. To this assertion I cannot even adduce, as an exception, the case of a poor little girl, whose bed being placed between the door and an open window, took cold on the second day after the

operation, and died of bronchitis in about three weeks, for the existence of so formidable a disease did not interfere with the result of the operation, and at the period of her death the wound was nearly healed.

I am not aware that the circumstance of the matrix of the nail becoming fungoid, in consequence of an abscess existing within the finger, has been noticed by any surgical writer, at least if it has, it does not appear to be so universally understood as its importance demands. That the membrane becomes fungous, and remains so until the abscess either bursts or is opened; that it occasions the most acute agony until that occurs, when it disappears spontaneously, may be proved by a number of cases, out of which I have selected the following, as being for other reasons as well as for this, highly interesting.

About the latter end of June, 1828, a gentleman, in adjusting his cravat, struck the point of a new pin, that had never been before used, into the extremity of his left thumb, but not under the nail: in the course of a day or two it became painful, slightly swollen and red, and very much resembled a slight attack of gout; in this state it remained for three weeks, when a crack appeared under the anterior edge of the nail, followed by a trifling oozing of serum. Immediately a

small fungus sprung up, which pressed against the nail and caused intense suffering: a portion of the nail was removed, and in proportion as the matrix was exposed it became fungous, until nearly one-half of it was in that condition. The patient being a professional man, had the advantage of the advice of many of his brethren, and of these one only, suspected the existence of an abscess. An incision was made into the thumb, but no matter found. Again, in the course of two days, another incision was made without benefit, although it was carried to a considerable depth. The patient's sufferings were extreme; totally deprived of sleep, he lay for whole nights with his hand steeped in spirit and water; his health declined, his appetite failed, and worn with constant pain, he became weak and wasted. In this state he remained during more than two months, when it was suggested that pressure might cause absorption of the fungus. This was applied by means of compresses of sheet lead firmly bound down upon it, and during the night he suddenly experienced relief: the abscess had burst; the fungus disappeared in forty-eight hours afterwards, but an irritable unhealthy ulcer remained, which required some longer time to heal. Hitherto I have noticed this case only with reference to the fungoid degeneration of the matrix of the nail; the sequel relates to a different subject,

but as it has been considered by many who witnessed its progress, as a proof, *that a morbid poison may be generated in consequence of a local irritation and sore, and that this poison may be capable of contaminating the entire system*, I shall not offer an apology for introducing it here.

It will be proper, however, previously to describe the condition of the patient as to his general health and habits.

His age 38, countenance florid and indicating a highly sanguineous temperament; he is rather corpulent, and not very active in his habits. He had previously enjoyed good health, unless from occasional attacks of cynanche tonsillaris. He had been, during the past winter season, more than usually employed in anatomical pursuits, and about three weeks before he wounded himself with the pin, he received a slight cut on the thumb whilst examining a subject that had died of diseased hip joint; the wound, however, had healed speedily and well. He has been married twelve years, has had nine healthy children, seven of which are living, *and by no accident or possibility could he have contracted any syphilitic taint.*

About three weeks after the first appearance of the fungus, the lymphatics of the fore-arm

became inflamed; the inflammation extended along their course to the axilla; sixty leeches were applied and the inflammation was subdued. About a month afterwards an enlarged gland appeared in the axilla, which was also resolved by the application of leeches.

On the 27th of September the abscess burst, and on the 29th he went to the country emaciated and debilitated to an extent not to be explained by the effects of so small a local disease. On the 10th of October his throat felt sore, with some trifling difficulty of swallowing; he returned to Dublin, his throat was examined, and no appearance of disease was discovered except a very slight blush of inflammation, which soon passed away. Towards the latter end of October an eruption of scarlet patches came out on his fore-head, fore-arms, and slightly on the shoulders and inside of the thighs. Sarsaparilla and the nitro-muriatic acid were now prescribed, and taken in considerable quantity. In this state he remained until the end of December, his throat being on one day free from uneasiness, and perhaps on the next extremely sore, the eruption sometimes disappearing entirely, sometimes shewing faintly under the cuticle like fading measles, and sometimes of a bright red scarlet colour. He continued taking the sarsaparilla up to this period, with warm baths twice

a week, and his general health had been improving since the sore on the thumb had healed. He got weary of taking medicine, and now discontinued it, and trusted to a nutritive diet and the use of port wine.

Early in January 1829 an anomalous kind of eruption appeared on his scrotum, and produced great annoyance it was so intolerably itchy, but it scaled off and disappeared in the course of a week without the adoption of any medical treatment whatever. On the 15th a tender tumefaction arising from periostitis was discovered on the left tibia, on the 19th it disappeared. On the 2nd of February an eruption similar to what had before appeared on the scrotum re-appeared; it also went away without the use of medicine. During the months of March, April, and May, his throat could never be considered in a state of health, and exhibited so much variety of symptoms, both as to appearance and pain, as rendered the case inexplicable as it was curious; sometimes when there was no trace of inflammation visible the pain would be excessive. An erythematous redness was, on the other hand, often suffused over the soft palate, and occasionally an appearance resembling abrasion of the surface, while there were no indications of exacerbation of pain. Sometimes whilst speaking his voice would suddenly fail, and

a paroxysm of cough interrupt his articulation; the cough was hard and unattended by expectoration; he would often commence eating, suffering under extreme torture in every attempt to swallow, and after a few moments he would perform deglutition without the slightest pain. In a word, these symptoms came and went alternately without any assistance being sought from medicine. But this uncertain and precarious state of health could not be borne any longer, and he determined to try the effects of mercury, though contrary to the advice of his friends, and took two grains of calomel daily for four days, when he was seized with a cough, accompanied with some hæmoptoe. The mercury was discontinued immediately, and never resumed: his mouth was made slightly sore by this quantity, his gums became spongy, and his breath foul. All the symptoms gradually and slowly declined, and he is now occasionally visited by the following. Wandering pain in the hip-joint of the right side, and weakness which prevents exercise on foot to any considerable extent. Some few pale and almost indistinct stains of eruption on his forehead after exercise. Some broad, flat patches of eruption of a scarlet colour, but not always of the same intensity, on the back of the hands: during the last winter the skin on the palms of his hands was hard and horny,

and the natural lines appeared like fissures; this has now disappeared. His throat never has been sore since he took the calomel.

I shall now conclude by hoping that the above case may be deemed sufficiently interesting to excuse the digression I have made in relating it, from the more legitimate object of this essay, namely, the symptomatic fungus of the matrix of the nail; but before I resign my pen I shall mention a case similar to it as far as relates to the appearance of the fungus, but differing in its progress towards a cure. Some short time since an eminent medical practitioner in this city suffered from inflammation of the thumb, produced by some trifling injury; in a short time a crack or fissure, from which flowed a serous discharge, appeared anteriorly between the nail and the flesh; from this sprouted a fungus which gave much pain, (this I believe is always the situation of the fungus indicating the existence of abscess.) This gentleman was resolved if possible to avoid such sufferings as he had seen experienced in the former case, and had the abscess opened by a deep incision through the fungous growth; immediately after the fungus appeared. All the pain and distress were removed, and the patient was well in eight and forty hours.

I had an opportunity of witnessing both these cases, and I think the situation of the matter was in the cellular tissue, between the bone and the nail.

A CASE

OF

RUPTURED INTESTINE,

WITH REMARKS ON SOME EFFECTS OF CONTUSIONS OF THE ABDOMEN,

By JOHN HART, M.R.I.A.,

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July 12th, 1826. An hostler, æt. 36, received a kick from a horse in the abdomen about 11 o'clock, A. M. He was brought to Mercer's Hospital at 6 o'clock on the evening of the same day, complaining of excruciating pain over the whole abdomen, with constant vomiting. He had a pale, anxious countenance, shrunk features, pulse 140 per minute, small and feeble; the lower extremities were drawn up, the abdomen flat and rigid, and so tender that he could not endure the slightest pressure over it, even that caused by the weight of the bed-clothes.

He said that on the receipt of the injury he fainted, and that on recovering his consciousness he felt the pain in his abdomen, the intensity of which had increased every hour. He had eaten no breakfast, but had drunk some porter a short time before the occurrence of the accident.

Previous to his admission into the hospital he had been bled, and some purgative had been given him, which was almost immediatelythrown off his stomach by vomiting.

On examination it was ascertained that he had not made water since he met with the accident, and that he was unable to do so from the pain the effort occasioned. A catheter was passed, and about two pints of high coloured urine were drawn off without seeming to have any influence on the abdominal pain.

Mr. Wm. Daniell, under whose care he was admitted, and who consented to allow me to publish the case, ordered leeches to be applied to the abdomen, their application to be followed by fomentation, and an emollient enema to be injected and repeated every hour until the bowels were freed. Several stools tinged with bile and containing some solid fæces followed the injection of the second enema: the symptoms,

however, suffered no mitigation, and he died in a state of extreme exhaustion at 5 o'clock on the following morning, having survived the accident eighteen hours.

DISSECTION,

Eight hours after death.

The peritoneum was suffused with numerous small red vessels, and coated over with a thin layer of fawn coloured lymph, which could be easily scraped off, and in which no red vessels were visible; the intestines and omentum were agglutinated to each other, and to the inner surface of the abdominal parietes in several places, through the medium of this soft lymph; a quantity of serous fluid tinged with bile, and mixed with the contents of the intestines, was found within the sac of the peritoneum; this was altogether free from any fetid odour. On examining the intestines it was found that the effusion had taken place through a rupture in the upper portion of the jejunum, which divided this intestine half across; owing to the retraction of the coats of the intestine, this opening was of an oval form, and surrounded by a raised border consisting of the everted mucous membrane.* The lymph was in greatest abundance,

* As described by Mr. Travers in his work on Injuries of the Intestines.

and the adhesions were most extensive in the vicinity of this opening. There was a large dark coloured patch on the arch of the colon, produced by an ecchymosis between its coats; but this intestine was unbroken although distended with fæces, some of which were nearly solid, as if they had been retained there for some length of time.

Between the layers of the transverse mesocolon and behind the root of the mesentery, there was a large quantity of dark coloured coagulated blood, amounting in quantity to about sixteen ounces. This blood had been shed from the smaller branches of the mesenteric vessels, as we ascertained by a careful examination that the aorta and all the large veins were uninjured.

The occurrence of rupture of an intestine without breach of the abdominal parietes has not, so far as I know, been heretofore satisfactorily accounted for. The late professor Todd conceived that it was owing to the portion of intestine which suffered, happening to be in a distended state at the time when the contusing force impinged on the surface of the abdomen.* According to this hypothesis no one part of the

* Dublin Hospital Reports, Vol i. p. 311. et seq.

intestinal tube should be more liable to this species of lesion than another, except in proportion as it was subject to be more frequently in a distended state. But what is the result of experience on this point? It is that this particular kind of injury almost invariably happens to the jejunum where it is continuous with the duodenum, or at some short distance from that point. Now, although my experience has convinced me that the statement so carefully transcribed from one system of anatomy to another, as to the jejunum being generally empty, is erroneous, more especially as regards the state in which it is found in persons who have met with a violent death while in full health and vigour, yet as it is not usually found more distended than any other portion of the small intestines, it appears obvious that its distention cannot be the reason why it is the part invariably ruptured by external violence.

Some other cause than simple distention must therefore operate in pre-disposing a certain portion of intestine to suffer the injury in question. It occurs to me, that this may more justly be attributed to the circumstance of the intestine being to a certain degree fixed on some resisting surface, at the moment when it receives the impulse of the contusing force. Such is the condition of the upper portion of the jejunum,

which at its commencement is fixed to the spine, and which for some inches lower down is confined to the vicinity of that part by the shortness of its mesentery. The absence of such contiguous resisting surface, would explain why it was that the arch of the colon in the case here cited escaped being torn, although the violence had acted on it with a degree of force sufficient to rupture the blood-vessels between its coats, so as to produce extensive ecchymosis. Every part of the large intestine however is not so exempt from rupture produced by external violence, as are the arch of the colon and the more moveable part of the small intestines; the cæcum, for instance, which is usually bound down by the peritoneum to the surface of the right iliac fossa, is occasionally burst by external violence. There is a case of this kind related by Mr. Speer in the fourth volume of these Reports.

Contusions of the abdomen occasionally produce other effects equally fatal with rupture of an intestine: of these, rupture of some large blood-vessel is that which produces death most speedily. The vessels which usually suffer in this case are those distributed through the glandular viscera. Rupture of the spleen, however, on its convex surface where the vessels are of smaller size, would not appear to be an

injury of very serious consequence, as after the effusion of a quantity of blood the wound in the organ may cicatrize. Rupture of the spleen is mentioned as one of its morbid appearances by the late Dr. Baillie.* The following example of this injury I witnessed while a pupil at the Richmond Surgical Hospital in 1818.

A patient of the late Mr. Todd, a policeman, who had been thrown from a window by some malefactors, received an injury of the head, of which he died in the course of four days. On examination of the body, appearances were found in the head sufficient to account for death; in addition to which there was discovered in the left hypochondrium, between the spleen and the diaphragm, a small quantity of coagulated blood, and on the surface of the spleen, in contact with the coagulum, there was a cicatrix of recent formation in the place from which the blood had evidently been shed. Had this been the only injury which this man sustained, it is rational to suppose he would have recovered without suffering any serious distress.

Rupture of the liver is an injury of much more serious consequence, owing to the numerous large blood-vessels which traverse its sub-

* See Morbid Anatomy.

stance in all directions. The following case occurred at the King's Infirmary in the month of August 1821, while I was acting as Assistant Surgeon to that institution.

A private of the 33rd Regiment was run over by a jaunting-car, the wheel of which passed across the epigastric region; he immediately became pale and faint, and covered with cold perspiration. The accident happened about two hundred yards from the infirmary, into which he was carried by his comrades; on the way he voided urine in his trowsers: when laid on a bed he expressed an urgent desire to go to stool; he was accordingly placed on a night chair, and after a copious alvine evacuation he fell forwards, as if fainting, and expired, having survived the accident about twenty minutes.

I examined the body on the following day in presence of Dr. O'Hara, the resident medical officer, and Mr. Russell, a pupil of the Surgeon General, when the following appearances presented: the abdomen was swollen and tense; the skin of the epigastric region was scratched, and presented a contused appearance in the direction over which the wheel had passed; the sac of the peritoneum contained about five pints of fluid blood, which was accumulated in the pelvis and hypogastric region; on each side

of the gall bladder, which was not injured, the liver was torn almost completely across from its thin margin to its posterior edge ; several large branches of the porta, hepatic artery, and hepatic venæ cavæ were divided, and the eighth and ninth ribs of the right side were broken. The urinary bladder was contracted to the smallest size, and the rectum was empty. It is pretty obvious that the involuntary passing of urine, and the desire to go to stool, were caused by the large quantity of effused blood pressing on the bladder and rectum.

When contusion of the abdomen is immediately followed by sudden faintness, a cold perspiration, pale countenance, feeble pulse, cold extremities, swelling of the abdomen, and desire to pass urine and fæces, there cannot be the the least doubt of the occurrence of internal hemorrhage.

EXTRAVASATION OF URINE.

Rupture of the urinary bladder is another effect occasionally produced by blows on the abdomen. The symptoms which indicate its occurrence, as detailed in two cases related by Mr. Cusack in the second volume of these Reports, are as follows : sudden pain, with a sensation of something having burst in the præcordia, bending forwards of the body, the abdomen

becomes swollen ; pulse about 90 ; there is an earnest desire to pass urine, and when the catheter is introduced so little urine comes away, that in one case it was merely sufficient to fill the tube of the instrument without flowing out. In these cases vomiting and the other symptoms of peritonitis supervened, and the patient did not die until about the eighth day after the accident.

CONTUSION OF THE ABDOMINAL PARIETES.

A contusion of the parietes of the abdomen may sometimes produce a degree of suffering, which might lead the observer to suspect at first, that rupture of the intestines had occurred. The most remarkable case of this kind which I recollect to have witnessed, occurred in a private of the Enniskillen Dragoons, named Connor, whose horse fell and rolled over him at a review in the Phœnix Park on the 30th of July, 1821. When brought to the King's Infirmary, immediately after the accident, he was suffering great pain over the epigastrium, so considerable that he could not endure the slightest pressure; his breathing was anxious and hurried, but his pulse was not above 80, and full ; he had no vomiting. He was much relieved by fomenting and leeching the abdomen, the use of an emollient enema, and rest for a few days, after which he speedily recovered and returned to his duty.

The symptoms which follow a rupture of an intestine with extravasation of its contents, are of such a complexion as to render the diagnosis between this injury and those other effects of contusions of the abdomen which I have here noticed, a matter of great difficulty. Its occurrence is indicated by the following symptoms; sudden acute pain mostly accompanied by fainting; the pain suffering no remission, but on the contrary, increasing in severity; vomiting sets in and continues until the termination of the case; the abdomen is flat and rigid, and intolerant of pressure; the countenance becomes deadly pale, and anxious, and the features shrunk; the pulse is small, feeble, and increased in frequency to 120 and upwards. In every case of this injury which I have seen there was retention of urine.* The patient generally dies within twenty-four or thirty-six hours after the accident; and on dissection there is discovered a rupture of the upper portion of the small intestine, or of some portion of the large intestine where it is fixed; there is extravasation of the intestinal contents, and lymph is extensively effused on the surface

* It is a curious fact, that retention of urine should follow rupture of the intestine, in other mammalia as well as man. Thus, in a Kangaroo which I have just dissected, and which animal died in consequence of ruptured intestine from an accident, the bladder was in a state of extreme distention.

of the peritoneum, which in many places forms adhesions between the contiguous surfaces of the intestines.

When contusion of the abdomen, followed by a train of symptoms such as I have here enumerated, indicate that rupture of the intestine and consequent extravasation have occurred, the prognosis which experience warrants in the present state of surgery, is, that the patient will die in a few hours.

Although I cannot propose any new plan of treatment of this injury, recommended by its having been tried with success, yet it occurs to me that the exhibition of purgatives, either by the mouth or in the form of injection, must be highly improper and prejudicial to any chance of recovery which the sufferer could possibly have, as by their action exciting the peristaltic motion of the intestines, they must tend to cause an increase of the quantity of intestinal contents effused, and remove the case still farther beyond the possibility of recovery. Instead of purgatives, then, it would appear more proper to give large doses of opium with a view of suspending the peristaltic motion: could this be accomplished, and the inflammation moderated by bleeding, general and local, and counter-irritants, sufficient time might be gained for the

formation of adhesions around the wound in the intestine, by which the extravasated fluids might be circumscribed, and at length find their way into the intestine, the passage through which might be re-established, as in the natural cure of artificial anus described by Scarpa, or possibly they might approach the surface of the abdomen in some part, where an opening being made, an artificial anus or fecal fistula might be established.

However speculative these views may appear respecting the plan of treatment here proposed, it has this much at least to recommend it; that, while it cannot be more unsuccessful than the practice heretofore had recourse to, it is the means best calculated to palliate one of the most distressingly painful states of suffering which the surgeon perhaps ever witnesses.

Since the above was written, I have been informed that views respecting the treatment of this disease, somewhat similar to those I have arrived at, have also occurred to Dr. Graves and Dr. Stokes, who have communicated the following particulars respecting a case successfully treated on these principles in the Meath Hospital. A

middle aged man was admitted on the 27th of June 1830, apparently in the last stage of peritoneal inflammation. The disease was of three days' standing, had supervened suddenly, in a few days after hypercatharsis induced by a large dose of glauber salts, and followed by long continued exposure to cold. It was attended by several of the usual symptoms of peritonitis from ulcerative perforation of the intestine. The belly was swollen, and so exquisitely tender, that the slightest pressure made the patient utter screams. The countenance was hippocratic, and the patient tormented with constant hiccup. Coldness of the extremities had commenced, and the pulse was weak and slow. Before the hour of visit leeches had been applied to the belly without relief, the patient was then ordered one grain of opium every hour.

The next day it was found that the symptoms were improved. *The patient had not experienced the slightest coma, headach, or delirium.* The same plan of treatment was persevered in, the daily dose of opium being gradually diminished until the 7th of July, when the convalescence having been completely established, the remedy was omitted. During this time diarrhœa set in for three or four days severely; this was treated by the application of a few

leeches to the anus, and the use of anodyne enemata.

The patient took in all one hundred and five grains of opium (exclusive of that in the injections) without ever experiencing any of the usual effects of this substance when exhibited in large doses!

PATHOLOGICAL OBSERVATIONS,

By JOHN HOUSTON, M. R. I. A.

ETC. ETC.

In the month of November, 1828, Mrs. T. was delivered of a male infant. The labour was natural, and the child healthy and of the full size; it exhibited no outward imperfections except a misplacement of the orifice of the urethra, which was situated underneath and behind the glans penis.*

On every attempt to suck, fits of coughing immediately supervened, threatening suffocation by their violence, and lasting until the milk was all disgorged again. Similar consequences followed every attempt at feeding the infant from a spoon. When only half a tea-spoonful was swallowed no signs of inconvenience were manifested, but as soon as the remaining half was taken, all the symptoms above enumerated supervened.

* A similar malformation of the urethra had been noticed in an elder boy of the same family.

On the suspicion that a stricture of the œsophagus or pharynx might exist, an attempt was made to pass a bougie by the mouth into the stomach, but without effect; the instrument met with obstruction at a short distance from the mouth, and could not by any means be guided onwards. All further attempts therefore, either at the use of instruments or the administration of food by the mouth, were desisted from, as they only caused distress, or brought on suffocation which threatened the patient's life. The infant quickly became emaciated, it cried incessantly, and died on the following day.

At the invitation of Dr. C. Johnson I assisted in making the dissection. The mouth, tongue, and opening of the fauces, were naturally formed. The pharynx was unusually wide, and terminated some way down the neck in a cul de sac (b. pl. 2. fig. 1, 2.) without having any connexion with the œsophagus. The larynx and its muscles were all perfect. The trachea was also complete on the anterior and lateral parts, but the posterior wall was perforated by a wide opening, (h. fig. 2,) from which the œsophagus took origin, and which appeared so smooth and oblique as to render the passage from the larynx into that tube, as direct and easy as that along the trachea into the lungs.

The stomach and other parts of the intestinal canal, as well as all the glandular viscera of the abdomen, presented their natural appearances, and contained those matters which are commonly seen in them at birth. In the stomach and small intestines a yellowish viscid matter was found in small quantity, and the large intestines were filled with greenish meconium. The liver was of the natural size, consistence, and colour, and the gall bladder held a quantity of healthy bile. The very unusual formation of the throat accounts satisfactorily for the symptoms and fatality of the case. The sac into which the pharynx was converted, held a small quantity of fluid in its bottom without inconvenience, but as soon as the quantity increased so as to rise on a level with the rima glottidis, the fluid coming in contact with that opening gave rise to the symptoms of suffocation. The glottis irritated by the presence of the foreign body, closed against its passage through the larynx, its only route to the stomach, and the infant thus deprived of nutriment died of inanition. The duration of life was even longer than could have been anticipated under such total privation of food.

The natural condition of the substances found in the intestinal canal, when the communication between it and the mouth was thus cut

off, deserves notice in a physiological point of view, as it proves beyond all question that these substances could not have come there by any act of swallowing, and consequently must have been formed in the canal by the process of secretion. Cases of congenital obliteration of the œsophagus or pharynx are not uncommon, but without such a complication as that which the above case presents, a communication between the trachea and œsophagus. There is only one other case recorded; it is quoted by Andral from L'Observateur des Sciences Medicales. (Marseilles, Juillet, 1825.)

EXPLANATION OF THE PLATE No. II.

Fig. I.

A POSTERIOR VIEW.

a. The tongue.
b. The pharynx terminating in a cul de sac.
c. The œsophagus.
d. The stomach.
e. e. The branches of the trachea.
f. The opening of the glottis.
g. g. A probe introduced through the larynx into the œsophagus.

Fig. II.

AN ANTERIOR VIEW.

b. The cul de sac.
e. e. The trachea laid open.
h. The passage from the trachea into the œsophagus.
g. A probe seen passing from the trachea into the œsophagus.
k. The thyroid cartilage.
l. The cricoid cartilage.

CASE OF ATTEMPT AT SUICIDE, WITH DANGER OF SUFFOCATION BY THE FALLING DOWN OF THE EPIGLOTTIS.

In March 1828, a servant out of place, residing in Duke-street, during a fit of delirium brought on by intoxication, attempted to destroy himself by cutting his throat with a razor. I saw him in about ten minutes after, and found him almost lifeless. The pulsations of the heart were imperceptible, the pulse at the wrist had ceased to beat, the limbs were cold, and all feeling and consciousness lost. The wound, which was frightfully deep, extended more towards the left than the right ear. The razor had entered between the os hyoides and the thyroid cartilage, and disunited them so completely as to allow the former to ascend with the tongue into the mouth. The pharynx was laid wide open, and the epiglottis severed from its attachments to the tongue and os hyoides, and left hanging by its pedicle to the back of the pomum adami. The carotids had escaped untouched, and the bleeding was inconsiderable. It appeared difficult at the moment to account for the sudden extinction of life; the symptoms were evidently those of suffocation, but the cause was not at first understood. I passed my finger into the wound, and found, to my surprise, that the

epiglottis, loosened from its upper and lateral attachments, had fallen back over the rima glottidis, and completely intercepted the passage of air to the lungs. I raised the obstructing body and drew it forwards : the chest soon after began to heave, respiration returned, the heart and pulse again beat, and consciousness and sensibility were re-established.

It required some effort of my fingers to hold up the epiglottis, as the air at every inspiration tended to force it back again to its unnatural and dangerous position.

While thus occupied with the patient, Surgeon Porter entered the room ; I explained to him the singular nature of the case, and how between my finger and thumb I held the regulation of the man's life or death. The top of the epiglottis was then brought over the edge of the thyroid cartilage, and secured to its anterior surface by a single stitch. The man in a short time sat up and attempted to speak, but was unable to articulate. He was taken into the Meath Hospital under the care of Mr. Porter, from whom I learned that he never recovered from the delirium which led to the perpetration of the act, and died in about a week after, of erysipelatous inflammation of the neck and throat.

The circumstance which had so nearly extinguished the life of this individual the instant after the wound was inflicted, is too plain to require comment; but the fact of its occurrence, and of the facility with which the immediate danger arising from it may be averted, is too important not to be made generally known. A respite of life for even a few hours in cases such as this, may be often of infinite value.*

EFFECTS OF THE ROPE ON THE NECKS OF CRIMINALS WHO SUFFER DEATH BY HANGING.

The knowledge of the effects produced by the rope on the necks of criminals when subjected to death by hanging, though not leading to much practical advantage, is not without interest, and the similarity of these effects in two which were lately brought into the College of Surgeons for dissection, strikes me as worth being taken notice of. Both the individuals were strong plethoric men, executed for murder of a tradesman of their own craft under the

* Since the report of this case, I have observed in Blandin's Traité d'Anatomie Topographique the following paragraph, which shows that if the accident alluded to has escaped notice, the possibility of its occurrence has been at least contemplated. He says, "L'epiglotte neanmoins, qui est alors coupée, peut par son abaissement sur le larynx causer des graves accidents."

combination system. Their death was evidently caused by strangulation. The cervical vertebræ were unbroken, and the spinal marrow and brain presented no marks of injury. In both the sterno-mastoid on the right side (the opposite to that on which the knot of the rope was applied) were ecchymosed, contused, and broken; those of the left side were only slightly bruised. The os-hyoides and thyroid cartilage were completely severed from each other. The omo-hyoid, sterno-hyoid, and thyro-hyoid muscles were so bruised and lacerated, that only some stretched shreds of them remained to hold the parts together. The thyro-hyoid membrane was also torn across, and the epiglottis, pulled from its root at the back of the thyroid cartilage, had passed up with the os-hyoides and tongue into the back part of the mouth; the skin alone remained unbroken, and interposed between the rope and the cavity of the pharynx. This was the only region of the neck which gave evidence of much injury; the great vessels and nerves all escaped unhurt.

In two other criminals, which more lately I have had an opportunity of examining, precisely the same effects had been produced by the rope on the soft parts of the neck, and without any injury to the brain or spinal marrow.

Two preparations illustrative of the above statement may be seen in the Museum of the College of Surgeons. The resemblance in the effects of the injury in both is remarkably striking.

CASE OF A MAN WHO LOST HIS LIFE FROM HAVING SWALLOWED A LARGE SPOON.

A maniac who died of peritonitis in the Richmond Lunatic Asylum, was brought into the College of Surgeons for dissection. The serous membrane of the abdomen exhibited all the marks of violent inflammation, viz., copious effusion of lymph and sero-purulent fluid, with extensive adhesions. A small quantity of the contents of the duodenum was extravasated in the left hypochondrium. A large rusty iron spoon, eleven inches long, was found lying across the spine in the cavity of the duodenum; its presence there can only be accounted for on the supposition that it had been swallowed by the individual, and that too, not during any attempt to convey food to his stomach, but a predetermined effort to plant the object itself there, for the handle was directed foremost: it had descended by the œsophagus, passed through both orifices of the stomach, and was only stopped in its course by the last acute turn of the duode-

num, where it produced ulceration of the gut, effusion of its contents, and consequent peritonitis. Notwithstanding the size and uncongenial nature of such a body passing through the gullet, it is singular that neither that tube nor the cardiac orifice of the stomach exhibited any marks of over distention or violence. The pylorus, however, in which the great end of the spoon still remained, was dilated, though neither ulcerated nor broken. The spoon was considerably bent in the centre, where it lay on the vertebræ, but whether it had this form previously to being swallowed, or acquired it in passing along the gut, cannot be now determined.

The dissection of this very singular case was performed in presence of Dr. Benson and many of the pupils, and the preparation exhibiting the fact is preserved in the college.

INTERNAL STRANGULATION OF THE BOWELS AFTER PARTURITION.

The following remarkable case, together with the preparation, was presented to our museum by Mr. Davis, with permission to give it publicity.

A lady about 28 years of age, and the mother

of several healthy children, to all of whom she had given birth without any untoward symptoms, was delivered of a healthy boy, her last child.

During her pregnancy she had experienced no unusual inconvenience, but immediately after the birth of the infant she complained of severe pain in the abdomen, which became violently aggravated on the placenta being discharged. No evacuations could be procured from the bowels; the belly became swollen and tense, and the pulse remarkably quick and small. She sunk rapidly under symptoms of the most acute peritonitis, and notwithstanding the most energetic treatment, expired in about thirty-four hours from the time of delivery.

DISSECTION.

The uterus had contracted, and nearly retired into the pelvis. The entire peritoneal surface exhibited all the marks of intense inflammation, and the ileum, to the extent of about three feet, was completely sphacelated, black, and filled with blood. A band of lymph, two inches long, and of considerable thickness and solidity, was attached by one end to the right ovarium and fallopian tube, and by the other

formed a tight noose around the mesentery of the mortified gut, which thoroughly strangulated and deprived it of circulation. The extravasation of blood, which had taken place into the cavity of the intestines, and among its tunics, marks the tightness of the ligature.

It would appear, from the absence of any disagreeable symptoms during pregnancy, and the rapidity and violence with which they followed the birth of the infant, aggravated still more after the discharge of the placenta, that the adhesion between the ovarium and mesentery had been contracted while the uterus was high in the abdomen, *and that the descent of that organ after parturition drew tight the band which strangulated the bowels.*

TWO CASES OF MALFORMATION OF THE HEART.

For the following case, together with a preparation of the heart, which was malformed, I am indebted to Dr. Graves.

" Patrick Sullivan, aged three years, was " admitted into the Meath Hospital on the 21st " of May, 1829. He laboured under evident " symptoms of tubercular cavities in the lungs

" and of bronchitis. The case was remarkable
" for the violence of the heart's action, compared
" with the feebleness of the pulse and coldness
" of the skin. The face, hands, and feet, were
" of a dark livid hue, such as occurs in morbus
" cæruleus from malformation of the heart.
" On inquiry it appeared that this colour had
" not been habitual, *and only came on when he*
" *laboured under pectoral affections:* we were
" not able to learn whether violent exercise
" used to produce the same effect.

" He died in two days after his admission,
" and on dissection, besides bronchitis, tuber-
" cular cavities, and infiltration of the lungs,
" the heart was found malformed."

The right auricle was large, foramen ovale closed, the fossa ovalis, unusually small, being only two lines in the vertical, and a line and a half in the transverse direction. The tricuspid valves were of perfect formation. The pulmonary artery was about half the usual size, and furnished with two semilunar valves. A defined smooth hole sufficiently wide to admit the little finger, and situated between the two last described openings, led from the right ventricle, through the septum, into the upper part of the left ventricle: this passage was twice as wide

as that leading into the pulmonary artery. The left auricle was small, the left ventricle of the same size and thickness as the right, and the aortic valves were perfect. The aorta was unusually capacious, and the ductus arteriosus diminished in size, but not obliterated.

CASE II.

The infant son of a medical gentleman became convulsed and livid after its birth ; it soon recovered from this state, and during the first six months had no return of such attack ; but he never sucked strongly, was languid, inactive, uneasy, and never could bear exercise in the nurse's arms. The veins about the head were permanently enlarged, the face always livid, and the lips blue. About the sixth month, when teething began, he had several convulsive struggles, one of which terminated in total insensibility and apparent death ; he recovered, however, by inflation of the lungs, and the adoption of other means usual in such cases, and gradually returned to his former comparatively healthy state. When eighteen months old, after suffering much from repeated convulsions, he became exhausted, and expired in one of these convulsive struggles.

The venæ cavæ and their leading branches

were unusually dilated; the heart was larger and firmer than natural; the right auricle was of double the ordinary capacity and thickness, and filled with coagulated blood; its foramen ovale was round and wide, and all its other openings of more than ordinary dimensions. The right ventricle was larger than the left, and almost devoid of columnæ carneæ. The tricuspid valve was perfect; this ventricle had no communication with the pulmonary artery; the passage from it into that vessel was totally blocked up, and in its stead a wide opening led into the aorta, which took origin from this part of the heart.

The left auricle was small and empty. The left ventricle exhibited nothing singular in its size or structure, but *communicated with the right* by an opening in the upper part of the septum ventriculorum, opposite the passage into the aorta. This opening, which was large, round, and smooth, rendered the communication between the right ventricle and aorta, nearly as direct as that between the left ventricle and that vessel. The aorta, at its origin, was much dilated; the innominata, carotid, and subclavian arteries were regular; the ductus arteriosus was large and pervious, and may be looked upon in this case as taking origin from the aorta, inasmuch as it carried the blood from that vessel

into the lungs, in the place of the obstructed pulmonary artery, to whose branches it served as a trunk. The pulmonary artery, though inconsiderable, was pervious down to its point of attachment at the ventricle. The lungs were healthy, high coloured, and nearly bloodless. The abdominal and other viscera of the body were perfectly natural and sound.

In the two cases just related, the proper circulation and arterialization of the blood was much interrupted by the unnatural communication between the right and left ventricle of the heart. *In both the state of the circulation bore a remarkable analogy to that in reptiles*, in which the arterial and venous blood are brought together to the same cavity in the heart, and transmitted thence mixed equally to both body and lungs.

In the first case, where the deviation from the usual condition of the heart was least exaggerated, viz., where the permeability of the pulmonary artery occurred in conjunction with a communication between the ventricles, the disturbance to the functions was least marked, and the duration of life longest.

In the second case, in which, besides the opening between the ventricles, all transit for

the venous blood to the lungs was cut off by the impermeability of the pulmonary artery; the infant was always blue, most easily disturbed, and short-lived. In this case the quality of the blood sent to both the body and lungs were exactly alike, and almost entirely venous; and in both it is worthy of remark, that the system was sufficiently nourished, even with the depraved blood, and that the children were easy while the circulation was allowed to be tranquil, and that disturbance and oppression were only manifested when any cause, such as fever or exercise, accelerated the movement of the fluids.

ENCYSTED HYDROCEPHALUS.

Sarah Dooling, a healthy looking infant, was affected on the day after its birth with slight convulsions. The convulsions continued, and increased so much in frequency and severity up to the sixth week, that on several occasions, after a fit, the infant lay for hours as if dead. About the sixth week the convulsions ceased, but the child became more stupid, and the head manifestly began to enlarge. Its ears were sensible to sounds, the sense of taste seemed to be unimpaired, but its eyes, which were rolled downwards, appeared incapable of being affected by light. When a year old the head was enormously large and heavy, the fontanelle

broad, and the fluctuation perceptible all through the cranium: at intervals it voided large quantities of urine, the evacuation of which was manifestly followed by a diminution in the size and tension of the head, and alleviation of the stupor. The infant's bowels were always costive, and it slept continually, except when hunger or thirst caused it to whinge. It died at the age of one year and seven months, and for several days before death had convulsive twitches. At death the weight of the head appeared equal to the entire weight of the body.

DISSECTION.

The bones of the cranium were thin and flexible; the membranes of the brain healthy. The cerebral matter was soft, pale, and exsanguineous. The convolutions were nearly effaced, their surfaces broader than natural, and their interstices less deep. On the removal of the membranes the brain could with difficulty be supported entire, owing to the quantity of fluid in its interior. In the situation of the corpus callosum a transparent membrane existed, scarcely concealing the fluid which lay underneath. The lateral ventricles were vastly dilated, and thrown into one common cavity by the absorption of their natural partition, the septum lucidum, no vestige of which

was discoverable; they were lined by a firm opaque membrane, smooth on the surface next the fluid, formed into folds, which divided the cavity into several lodges, and supplied with numerous blood-vessels larger and more turgid than those on the surface of the convolutions. The fluid which the ventricles contained was limpid, of a pale straw colour, and in great quantity. The cerebellum was reduced to one-half its usual bulk, its substance softened, and its convolutions scarcely traceable. Its place was occupied by the water of the fourth ventricle; and the arachnoid membrance, covering its posterior and lateral surfaces, was universally adherent to that lining the dura mater of the posterior fossa. The pons varolii was small, and soft in texture. The nerves, at their points of exit from the skull, were perfectly distinct, though their origins from the brain could with difficulty be traced.

So far the morbid anatomy of the case offers nothing very singular; the most remarkable circumstance connected with it remains yet to be noticed, viz., the existence of various sized cysts in different parts of the cerebral substance, unconnected with the ventricles, and which continued to hold fluid after the evacuation of water from these cavities. There were two such cysts, each of the size of an almond, in the site of the fornix and optic thalami. Two others were found in the

anterior lobe of the right hemisphere, each capable of holding from one to two ounces of water, and perfectly distinct from each other and from the neighbouring ventricle. These cysts were distended with fluid and lined with membranes, bearing the same general characters as those which existed in the ventricles. There were two other small cysts near the base of the brain, analogous in their contents and in the qualities of their lining membrane to the proper ventricular cavity. The cerebral matter in the immediate neighbourhood of these cysts had undergone no material change, and differed not in quality from that in other more remote parts of the brain.

This variety of hydrocephalus, which from the number of distinct cavities it exhibited may with propriety be called encysted, is not, I believe, of frequent occurrence. It was evidently congenital, but I shall not, without some further data, risk any speculations regarding the peculiar circumstances from which it may have arisen.

A CASE

OF

OBSTINATE AND EXTENSIVE PSORIASIS,

SUCCESSFULLY TREATED,

By WILLIAM WEST, M.D., M.R.I.A.

Notwithstanding the light thrown upon the pathology and treatment of psoriasis by Dr. Duffin and M. Biett, it must be confessed that this intractable disease still not unfrequently baffles the most skilful practitioners: I think, therefore, that the following case is well deserving of attention, as an instance of a perfect cure effected by a mode of treatment which, rational as it appears on examination, has not, as far as I am aware, been suggested by any writer on the subject.

In June, 1829, Mr. H. W., aged 20, of a robust constitution, was attacked by psoriasis, which first made its appearance on the lower part of the back, then extended to the thighs and legs, and at last covered the scalp, the

whole of the body and extremities, with the exception of the face and hands. This eruption did not at first excite much uneasiness in his mind, as he thought it would go off spontaneously, but when he saw it spreading more and more every day, he applied to me for advice.

I prescribed Plummer's pill, and the application of an ointment composed of a mixture of tar, citrine, and sulphur ointments, a mode of treatment I had found effectual in other cases of this disease. The eruption however still gaining ground, he had recourse to sulphur-vapour and artificial Barege baths, which he persevered in assiduously for nearly three months with little permanent improvement, although he at the same time took a considerable quantity of the liquor arsenicalis internally, in the manner advised by Biett, and had occasionally tried the effects of a lotion of tincture of iodine diluted, and some other reputed specifics.

At last I consulted Dr. Graves, who advised the antiphlogistic method of treatment recommended by Dr. Duffin, together with a perseverance in the arsenical solution, after the inflammation had been reduced by venesection, aperients, and low diet. We had recourse to these remedies, and continued to apply them for

many weeks, but without relief, as the disease, although occasionally mitigated, assumed its former degree of violence, the moment the patient took exercise, or in the slightest degree deviated from the use of vegetable diet: under these circumstances he naturally became impatient, complaining that his strength was much reduced, while little or no progress had been made in curing the disease.

It was now proposed to omit the use of all remedies for some time, until he should have regained his strength, and his constitution have recovered from the impression made on it by the arsenical solution, &c., &c., when we proposed to re-commence the treatment, but in a different and more energetic manner.

Dr. Graves observed, that a strict adherence to the antiphlogistic regimen is much more readily enforced when the patient is confined to bed, than when he is allowed to go about, and that the constitution is much less injured by the antiphlogistic treatment, which consequently can be pushed farther, and with more effect; that confinement to bed has also the advantage of guarding the skin from all sources of external irritation, and by tending to keep it in a perspirable state accelerates the cure.

Our patient, a young man of active habits, was, but with difficulty, induced to submit to this confinement. He was placed on a cooling and scanty vegetable diet, was bled several times, and his bowels were kept open by a purgative electuary consisting of cream of tartar and electuary of scammony. The good effects of this treatment soon became apparent; the redness of the affected parts diminished rapidly, the formation of scales decreased in the same proportion, and in less than five weeks he was almost completely freed from a disease, which had lasted more than six months, and had resisted so many active remedies: he has not since had any appearance of relapse, nor is there any mark or discoloration of the skin where it had been the most severely affected.

As those affected with psoriasis and lepra are generally persons of strong constitutions, confinement to bed will generally be resisted as unnecessary and irksome: when, however, the disease is general over the surface of the body, and does not yield to the usual plans of treatment, we may have recourse to it with much advantage.

CASES

OF

DISEASED BRAIN,

By ROBERT LAW, A.M., M.D.,

FELLOW OF THE KING AND QUEEN'S COLLEGE OF PHYSICIANS IN IRELAND,
PHYSICIAN EXTRAORDINARY TO SIR PATRICK DUN'S HOSPITAL.

TUMOR IN THE BRAIN.

William Butler, aged 13, admitted into hospital for distressing palpitation of the heart, which was much increased by walking quickly or by ascending a height: his respiration was very laboured and oppressed; from the inactive life which he has been obliged to lead, he has become very full and plethoric. Before his admission into hospital he had two convulsive attacks, which were preceded by a dull pain in the left side of his head, from which he has never since been quite free, though it gives him very little uneasiness. The treatment was exclusively directed to the affection of the heart. When he had been about six weeks in hospital he was seized with an epi-

leptic attack, followed by feverish symptoms, which caused him to be removed from the chronic ward to one of the fever wards, when he came under my care: he had a peculiarly dull, heavy, lethargic appearance, and complained of a strange sensation in his heart; the pupils were unequally dilated, the left more than the right; not much heat of skin, nor acceleration of pulse; tongue loaded with yellowish fur; notwithstanding the application of leeches to the temples, cold lotions to the shaved head, a blister to the nape of the neck, and two grains of calomel every third hour, he fell into a complete state of coma, which was attended with frequent convulsions affecting principally the left side, and he died on the fourth day.

DISSECTION.

Considerable turgescence of the vessels on the surface of the brain. In the substance of the right hemisphere of the brain, and about an inch from the surface, there was a tumor as large as a hen's egg, hard and firm in its structure, while the brain in which it was imbedded was soft and diffluent; it was of a greenish yellow colour. The left ventricle was distended with limpid serum; the right ventricle contained no fluid.

The pericardium adhered to the heart through the medium of a dense adventitious membrane two lines in thickness, the heart larger than natural, lungs healthy, liver much increased in size, without any apparent deviation from its natural structure; mesenteric glands unusually developed. A section of the tumor exhibited a uniform consistence and colour.

The preceding case proves to us the difficulty of ascertaining the existence of organic disease in the brain, and how imperfect a measure of internal mischief are external manifestations, for we cannot but suppose that this tumor, the result of slow chronic inflammation, had existed long before any constitutional derangement could have led to any suspicion of its existence; it further confirms the pathological fact, that any organ, no matter how essential to life, can submit to considerable alteration of structure, provided that such alteration is so slow and gradual as to admit of the economy's accommodating itself to it: the effusion into one ventricle only, is remarkable.

TUBERCLES IN THE BRAIN, IN THE LUNGS, AND IN THE PERITONEUM.

A girl aged 12, before she made any complaint, was observed by her parents to become dull and languid, her face had acquired a pinched

and anxious expression; she was no longer the cheerful, animated, intelligent child she had hitherto been, but had become fretful and irritable; her appetite declined, her pulse was small and frequent, her skin hot and dry, her tongue loaded with whitish yellow fur, her breath emitted a sickly, heavy smell; she now began to complain of flying pains through the abdomen, and on awaking in the morning felt a confusion in her head, and an inability to recollect where she was; the abdomen was hard and scarcely sensible to pressure; bowels generally required aperient medicines; an evening exacerbation of fever came on at 7 o'clock; she had a teazing frequent cough, with thin glairy expectoration; the respiration was feeble under each clavicle; a tumor formed on the scalp, and suppurated, and on being opened gave vent to thin curdy purulent matter; a similar one appeared on the right cheek anterior to the parotid gland; the emaciation proceeded rapidly, the fever increased in intensity, and came on earlier; the abdominal pains returned at shorter intervals, the abdomen became extremely hard, and the skin dry, harsh, and scaly; in the midst of these symptoms she was seized with a violent pain in the head, which she compared to a burning, scalding sensation, and which, when it came on, caused the most distressing screams; her hands and arms now became paralysed, the counte-

nance distorted, and in two days she died, having retained her intellect to the last moment.

DISSECTION.

A circular portion of the cranium, corresponding to the suppurating tumor in the scalp, was denuded and rough, and immediately underneath it, and to the same extent, there was a deposition of coagulable lymph on the surface of the dura mater; on the surface of the brain, and in the ventricles, there was a considerable quantity of serum; the substance of the brain seemed as it were dissolved, and had the appearance of being soaked in water. In the left posterior lobe of the cerebrum, and not far from its surface, there was a tumor, the size of a nut, containing cheesy matter.

The apex of each lung was in a condensed state, and contained small encysted cheesy tubercles. The parietal and visceral peritoneum were so intimately united as to be separable only by dissection; also the convolutions of the intestines were firmly glued together by a thick adventitious membrane, in whose substance there were numberless cheesy tubercles, generally of the size of a pea. The liver was larger than natural, but exhibited no alteration of structure, it was only paler than usual: upon

its convex surface, and corresponding to the attachment of the suspensory ligament, there was a tumor the size of a pigeon's egg, containing the same cheesy matter as the smaller tubercles. The mesenteric glands were not unusually large. This case exhibits a very general formation of tubercles in the different cavities, with the irritative fever, which will generally be found to accompany the development of these bodies; the peritoneal inflammation was not attended with much pain, and that so intermittent, as to have been easily mistaken for that caused by flatus in the intestines. Had this child survived the tubercular peritonitis, we have reason to suppose she would have fallen a victim to phthisis pulmonalis at the period of life when the energies of the system are directed to the chest, the germ of the disease being developed in each lung: she was the tenth child of the same family that had been carried off by this disease. The treatment adopted consisted in the exhibition of small doses of hydrargyrum cum cretâ, frictions of the abdomen, with an ointment composed of mercurial ointment and iodine, the tepid salt water bath, and a sojourn on the sea shore, but nothing seemed to give the disease even a temporary check.

CARIES OF THE CRANIUM WITH RAMOLLISSEMENT OF THE BRAIN.

Anne Kelly, aged 18, although her physical development does not bespeak more than 14 years, has been delicate from her infancy ; at the age of seven her neck broke out in numerous sores, the cicatrices of which are still to be seen ; a few months since several tumors formed on the head ; they were hard, and after some time became painful, and ulcerated ; she now was seized with convulsions and lost the use of her right side. In this state she was admitted into hospital ; besides the cicatrices and ulcers on the neck, there was a circular ulceration about six lines in diameter over the inner angle of the left eye, which had begun in a hard indolent tumor, and after continuing in this state for some time proceeded to ulceration; a similar one, but larger, formed over the left ear, and pursuing the same course, destroyed the bone and laid bare the dura mater; the heaving of the brain was distinctly to be seen here, and at each elevation of it, a quantity of purulent matter was pumped up from under the edges of the sore ; the right arm and leg were paralysed, but their sensation and temperature were natural. The speech was so much affected as to render her unintelligible; pulse and heat of skin natural, appetite good; she complained of slight pain in

the left side of the head; leeches to the temples, purgative medicines, friction of the paralysed limbs with stimulating embrocations, and regulated exercise, enabled her to leave the hospital in six weeks, with her speech much improved, and with the motion of the leg much restored, though the arm still continued useless. She remained three weeks tolerably well when she was seized with fever, for which she was again admitted into hospital; almost immediately after admission she became comatose, in which state she continued until a violent convulsion seized her and carried her off. The coma lasted for three days, nor did blisters to the nape of the neck and calves of the legs, and strong stimulating purgative enemata, awaken the least sensibility.

DISSECTION.

In the situation of the ulcer above the left ear, a circular portion of the cranium, about eight lines in diameter, was entirely removed; the internal lamina of the left parietal bone for about a third of its extent was destroyed, exposing the cancellated structure of the diploe, there was also considerable caries of the inner plate of both parietal bones, and the frontal, where they meet at the superior fontanelles, as also in the course of the sagittal suture: the eroded surface was rough and irregular; there were numerous

small circular perforations leading from the diseased internal portions of bone to a smaller diseased portion of the external lamina; they were of various dimensions, one was capable of admitting a large quill, while others did not exceed the small holes which afford passage to the nutrient vessels of the bone; through the larger one came the purulent matter which we observed to be pumped up at each motion of the brain. The external or cranial surface of the dura mater corresponding to the diseased bone, presented a rough fungoid appearance, owing to a deposition of of lymph, while the internal or cerebral surface was natural. The surface of the brain exhibited nothing peculiar, either in point of vascularity or colour, but in the substance of the left hemisphere and external to the corpus striatum there was a considerable breaking down and ramollissement of the cerebral structure, but no appearance of purulent matter; the lateral ventricles were distended with colourless serum.

The base of the left lung was in the first stage of pneumonia; all the abdominal viscera were healthy; the uterus was excessively small. The preceding case presents pathological features precisely similar to one described by Abercrombie in his valuable work on Diseases of the Brain, in each were the same destruction of bone, the same deposition of lymph on the

dura mater, and the same disorganization of the cerebral substance. In the case which fell under my care, the diseased portion of brain was not subjacent to, nor situated near the diseased bone; and that the internal lamina of bone was first affected, we may infer from the fact that wherever the external lamina was engaged, there was an aperture leading to a similarly affected portion internally, whereas there was extensive internal caries without any visible external communication. We may form an idea of the duration of the disease from the check which it seemed to give to the physical development. The father of this young woman had been a person of very irregular habits, and had suffered much from syphilis, and her appearance bespoke a highly scrofulous diathesis; she thus seemed to have, as it were by inheritance, that habit of body on which disease inflicts the most frightful ravages.

ABSCESS OF THE CEREBELLUM.

A girl, aged 8 years, was received into hospital labouring under unequivocal signs of effusion into the brain; she was quite comatose, the pupils were widely dilated, pulse small and thready, extremities cold; she died twelve hours after admission.

DISSECTION.

Moderate congestion of the superficial veins of the brain; the substance of the brain was less solid and firm than natural; the ventricles were filled with serum; the dura mater, corresponding to the anterior part of the petrous portion of the left temporal bone, had lost its transparency, and adhered but loosely to the bone; in the left lobe of the cerebellum there was a defined abscess, containing about half an ounce of thin curdy purulent matter without smell: the interior of the abscess was coated with lymph, which could be easily detached; the circumjacent brain retained its natural consistence; the viscera in the thorax were healthy; enlargement of the mesenteric glands was the only morbid appearance presented in the abdomen. The following particulars I obtained from an intelligent medical man, who had been in the habit of seeing this child; she was very subject to attacks of mild fever, brought on by cold, and always attended with purulent discharge from the left ear; in the intervals of these attacks she enjoyed good health, and was remarkable for her vivacity and intelligence, nor did the symptoms in this last attack exhibit any thing to excite alarm until coma actually came on. This case proves to us how insidiously and

and with how little constitutional disturbance scrofulous inflammation pursues its course; we can have little doubt that although the cerebral abscess existed much prior to the effusion, still the symptoms of compression of the brain were the first indications of an affection of this important organ. The coincidence of purulent discharge from the ear, and abscess of the cerebellum, has often been noticed, in this case, however, it did not appear that there was any extension of inflammation from the cerebellum to the ear, the abscess of the cerebellum being completely isolated. I would here observe on the softened condition of the brain, to which I have had occasion to advert more than once in the preceding cases, this condition Abercrombie regards as one of the most common forms of acute hydrocephalus, and considers it an actual degeneration of the cerebral matter; it seems to me to be nothing more than a serous infiltration into the substance of the brain, diminishing its consistence; and if this view be correct it will account for the absence of effusion in many cases where patients have died with all the symptoms of hydrocephalus; this interstitial infiltration giving rise to all these symptoms, and being overlooked from our not having an absolute measure of the due consistence of the brain. That this infiltration should take place into the substance of the brain is not improbable, when we reflect that

every modification of disease which occurs in other parts of the body occurs here also, viz., all the terminations of inflammation, abscess, ulceration, gangrene, besides the different morbid developments, such as tubercle and the different species of tumor; we are thus also assisted in unravelling the anatomical nature of the brain, for if identity of affection argue identity of structure, we may safely conclude that the cellular membrane which is the matrix of these diseased conditions in other parts of the body, is so here also; it is thus that pathology, by the changes which it produces in parts, often brings their anatomical constitution within the focus of our senses, whereas in their natural unaltered condition it lies beyond them; thus does the effusion, which takes place between the laminæ of the cornea, giving to the eye the lack-lustre appearance it so often assumes before death, more satisfactorily demonstrate the real nature and constitution of this membrane than any artificial contrivance could do; thus also do empty apoplectic cells establish the existence of absorbents in the brain, a fact which the examination of that organ in a healthy state has failed to bring within the reach of our senses.

HEMIPLEGIA UNACCOMPANIED BY ANY EVIDENT STRUCTURAL CHANGE IN THE BRAIN.

John Stringer, aged 34 years, five years ago, while serving in the East India Company

Service, received a bayonet wound in the forehead over the left eye, which penetrated the bone and gave rise to a sore which occasionally healed and broke out again ; since the infliction of the wound he has never been quite free from uneasiness in his head ; about six months since, while in bed, and without any previous warning, he was seized with paralysis of the right side and and loss of speech ; he partially recovered from these when he got the fever, for which he was admitted into hospital ; he exhibited the following symptoms : quick pulse, tongue coated with yellowish fur, skin jaundiced and burning hot, epigastrium and right hypochondrium tender on pressure ; a sore about the size of a six-pence over the left eye-brow, with exfoliation of the bone to such a degree as to expose the dura mater ; complete paralysis of the right side with loss of speech ; for a few days he shewed some signs of amendment, but suddenly he became insensible, in which state he continued until death.

DISSECTION.

The portion of dura mater corresponding to the exfoliated bone seemed to have its fibrous lamina destroyed, while its serous lining was thickened and of a blueish colour; the subjacent brain had undergone no morbid change ; there was considerable effusion on the surface of the brain.

All the thoracic viscera were healthy; the liver enormously enlarged, weighed ten pounds, but did not appear to have its structure altered; the spleen, nearly three times its natural size, exhibited a strange appearance; its superior third was converted into a yellowish, soft, cheesy substance, the middle third had undergone that breaking down, that softened condition, which prolonged ague often produces in this organ; the inferior third had retained its natural organization and consistence; the mucous membrane of the stomach was deeply vascular.

HEMIPLEGIA WITH RAMOLLISSEMENT IN BOTH THALAMI OPTICI, AND CORPORA STRIATA.

Harris, a watchman, of rather irregular habits, a week since, while in the full enjoyment of health, had an apoplectic seizure from which he lay for a considerable time in a state of stupor, but was at length roused by copious bleeding; his left side was quite paralysed, and his speech lost; in this state he was carried to hospital, where he continued for two months with a constant low typhoid fever; during this time he had occasional determinations of blood to the head, which were subdued by leeches and cold lotions; he sunk under the fever without the constitution seeming to make the least effort towards rallying. Examination of the body dis-

covered extensive softening of both optic thalami, and corpora striata ; the change of structure was more marked on the left side than on the right. I have related the two preceding cases, placed them, as it were, in juxta-position, to shew that opposite conditions of the brain will give rise to the same symptoms during life; the latter case is remarkable for having the brain on the same side with the hemiplegia more diseased than that on the opposite side, and runs counter to the opinion of modern pathologists, that paralysis of the upper and lower extremity must follow disease of the optic thalamus and corpus striatum of the opposite side.

SMALL AND FREQUENTLY

REPEATED BLEEDINGS,

IN

HÆMOPTYSIS AND INCIPIENT PHTHISIS,

RECOMMENDED IN

A LETTER

TO

R. J. GRAVES, Esq. M.D.,

PROFESSOR OF THE INSTITUTES OF MEDICINE,

FROM

J. CHEYNE, Esq.,

PHYSICIAN GENERAL.

Merrion-Square,
July 13th, 1830.

My dear Sir,

I shall endeavour, in conformity with your wishes, to commit to writing the observations which I made this morning, relative to the efficacy of small bleedings, frequently repeated, in hæmoptysis and incipient pulmonary consumption.

I have often seen phthisis commence without any unequivocal symptom of pulmonary disease,

but apparently as a fever of an inflammatory kind, with quick pulse, hot skin, flushed countenance, white tongue, high coloured urine, &c., &c. The disease might have passed for general fever, no local affection being predominant; some mitigation of symptoms was usually observable after a period of two or three weeks, and the physician, expecting that the disease would, in all likelihood, terminate gradually, and probably without crisis, naturally promised recovery, although it might be slow; instead of of which, consumption either rapidly advanced, the case becoming what is vulgarly termed galloping consumption, or its progress was slow and insidious. In the course of such attendances, the physician at last begins to feel some surprise at the continued quickness of the pulse; he fears that all cannot be right while the patient, although he eats well and walks about, does not gain strength; the breathing too is not quite natural, an occasional dry cough occurs, of which the patient seems unconscious, and emaciation is palpable. The disease has now made some progress, and another physician being called in, the case is looked at with a new eye; night perspirations are discovered; on minute inquiry hectic fever is more than suspected, and the case is pronounced to be incipient phthisis. It is in the more chronic cases to which I have alluded, that small bleedings of six ounces practised once

in four or five days have sometimes apparently proved sanative.

There is a species of hæmoptysis, perhaps it ought rather to be called bronchial hemorrhage, which runs a course of two or three weeks, I think generally the former period, which is also attended with symptoms of general fever, and in which the hemorrhage may seem to be a symptom of general fever; but in my judgment both the fever and hemorrhage are symptomatic of incipient consumption. In these cases recovery seems to take place under antiphlogistic treatment, but often it is not solid recovery. Gradual emaciation is observable, with that ominous dry barking cough, which is often so long a solitary symptom of slowly advancing tuberculation. Then, after months of what may be designated unconfirmed health, rather than manifest disease, the patient declines more rapidly, and hectic fever concludes the sad history. Patients of this description may sometimes be saved by timely bleedings, not exceeding six ounces every sixth or seventh day, with a regimen suited to the strumous diathesis.

Hæmoptysis in its more common form of pulmonary apoplexy, as it is fancifully called by the French pathologists, may sometimes be successfully treated in the same way, namely, by

small bleedings repeated at stated intervals. But these are topics which would require to be more carefully handled than my time at present will permit: they would best be explained, not by the hospital physician, but by him who practises extensively among the upper classes; but unhappily they who, advancing in life, obtain lucrative employment, are often obliged to forsake the favourite pursuits of their youth for occupations neither so interesting nor agreeable, and their matured experience, which often contradicts the conclusions of youthful zeal, is unproductive to all but themselves.

I shall now relate the case which confirmed my opinion respecting the applicability of small bleedings to hæmoptysis. It was that of a gentleman who had long laboured under bronchial hemorrhage, so obstinate that it had resisted all the ordinary methods of treatment. The remedies ordered by me were as unavailing as those which had been suggested by my predecessors in attendance, and I had almost given up the patient for lost. I had however, observed in this case that the bleeding returned upon excitement of any kind taking place. A very slight cause would often produce sanguineous expectoration: when I drove up to this gentleman's lodgings, the flurry produced by a medical visit invariably caused a slight hæmoptoic attack, insomuch

that I found it necessary to leave my carriage in an adjoining street, give only a single knock at the door, and slip into his room without noise. At last I was induced to think that we might with advantage, employ small bleedings, thereby to moderate the action of the blood vessels, and on the principle of the ancient doctrine of derivation and revulsion, a doctrine which I think ought not to be hastily surrendered. This gentleman's case, drawn up by himself, much better than it could be done by me, was transmitted in the following letter, and is, I think, well deserving of publication.

6th *Dec.* 1828.

My dear Sir,

I send you as particular a statement of my case from its commencement as my recollection supplies me with. There is, I doubt not, much in it which it is unnecessary to mention, but you will make what use of it you please. The mode of treatment adopted by Dr. Clarke at Rome, and at Geneva, was a strict attention to diet, occasionally a slight alterative course of blue pill, and now and then bleeding from the arms with leeches. But I need not tell you that these and all other remedies completely failed; and I feel convinced that a few weeks would have seen me in my grave, when you suggested the lancet, to which, under God, I owe whatever length of days may be yet in store for me.

Very truly,

My Dear Sir, &c.

CASE.

The first tendency to hæmoptysis experienced by ———, now a clergyman in the established church, appeared when he was about the age of fifteen, in the year 1807. From that period to the year 1823 he continued subject to several attacks of bleeding annually, but of so slight a nature as not to affect his general health, or interfere with his professional avocations.

In the month of May, 1823, however, he experienced an attack so serious, and attended by so alarming symptoms, that, under medical advice, he was bled to the amount of twenty ounces, and took, for several successive days, (with a view of lowering the circulation,) frequent doses of a nauseating mixture, which reduced the pulse, and for a time checked the bleeding from the lungs. But the complaint returning, and great debility coming on, he was obliged to absent himself from professional duty, and repaired to the neighbourhood of Dublin.

To the hæmoptysis were now added total loss of appetite and derangement of stomach, so that the food was rejected almost as soon as swallowed. In this state he continued about five months, when being advised to spend the

winter on the continent, he left Ireland, October 1823, and proceeded to Nice, where he arrived early in December.

Previous to his departure from Ireland an issue had been inserted in his arm, which he was directed to keep open on the journey; his health very much improved, but every morning he expectorated a little blood, or mucus tinged with blood. In a few days after his arrival at Nice he was again attacked with bleeding from the lungs, and extreme difficulty of breathing, so that for several nights he was unable to lie down; but upon changing his residence from the north to the south of the town, the asthmatic affection immediately ceased.

The hæmoptysis also was in some degree checked, but the derangement of stomach and expectoration of bloody mucus still continued. At Rome, where he passed the months of March and April, 1824, and subsequently at Geneva, during the summer, he was subject to frequent returns of the complaint, occasionally so severe as to call for large bleedings from the arm, and other active treatment.

In November he returned to Ireland, having been detained some weeks in Liverpool in consequence of a very serious attack of hæmoptysis.

In Dublin, during the winter, the complaint increased in violence, and became much more frequent in its returns; nor did the various remedies usually prescribed in such cases, appear to check it in the slightest degree.

The constant recurrence of those attacks produced great emaciation, and, at length, such a degree of weakness, that he was unable to walk across the room without assistance.

In this state of extreme debility he remained up to February, 1825, when every thing else having failed, it was suggested to try small bleedings from the arm at stated periods. For some months previous to the application of this remedy he had daily at least three, and frequently four attacks of hæmoptysis. About the middle of February, immediately after an attack, six ounces of blood were taken from the arm. For three days after he had no attack, and on the fourth a slight one, after which six ounces of blood were again taken. No attack for ten days. The attacks now gradually became less and less frequent, but every week six ounces of blood were taken from the arm. In the beginning of May he went to the country, with directions to continue the stated bleedings, which he did regularly every week, using the lancet himself, and thus being enabled at once to check an

attack. The blood was invariably much cupped and buffed; the complaint gradually subsided; health and strength slowly returned. During the whole of the ensuing winter he was able to take exercise in the open air without suffering from cold. In the month of June, 1826, he again entered upon the duties of his profession, from which he has never since been obliged to absent himself, and with the exception of an occasional attack, which occurs generally in the spring and autumn, and is invariably checked by the lancet; he is now in as good health as he has ever been at any period of his life.

As a precautionary measure he continues to take from four to five ounces of blood from the arm every six weeks or two months. The blood does not now exhibit the slightest appearance of inflammation.

During the entire illness, until recourse was had to venesection at stated times, the digestive organs were exceedingly deranged, but with the abatement of the hæmoptysis, the stomach began to recover its tone, and the bowels to act without opening medicine.

Of late I have frequently prescribed venesection in the more common form of hæmoptysis, and in

some cases with success. Unfortunately I have no notes of their cases, but some of them are distinctly in my recollection, such, for instance, is that of a young lady who had a most alarming attack in July, 1826, in which three wash hand basins were half filled with expectorated blood. This young lady was at first let blood every three or four days, and then, for a long time, she was blooded between every menstrual period, so that, considering the menstrual secretion as equivalent to one blood-letting, she lost blood twice in the month, and with great apparent benefit to her health. This young lady, when I last heard of her, about two months ago, was in good health.

In bronchial hemorrhage it is not the loss of blood which is destructive to life, but the inflammation and disorganizing process, which is caused by tubercles, of which the hemorrhage is but a symptom, and often even a means of temporary relief. And considering that not merely has the hemorrhage been checked by venesection, but the vascular irritation on which it depends, in some sort arrested, I have been led also to try small bleedings once every week or ten days, in what I conceived to be incipient phthisis, and with a degree of success which forbids the relinquishment of that practice. Among other encouraging cases, I may mention that of a young gentleman of a family which consump-

tion had completely ravaged: he came to me last spring with a dry barking cough, (not from cold.) There was a portion of the thorax in which respiration was inaudible, and which, on percussion, emitted scarcely any sound, and was also the seat of uneasiness; and emaciation had already commenced. This patient was relieved by these bleedings, and when I last saw him he said he was quite well, and his appearance did not contradict the assertion.

Both in hæmoptysis and in incipient phthisis, these small bleedings may be practised with safety, and often, if I mistake not, with more advantage than any other remedy in use. To acquire a just view of such cases we ought to consider them as instances of scrofula affecting the lungs, in which an inflammatory state is caused by the presence in that organ of irritating substances, as tubercles doubtless are. In phthisis these attacks of inflammation in the tuberculated portions of the lungs precipitate disorganization. Phthisis is often, for a long time, only suspected, until uneasiness in the chest, perhaps increased frequency of the pulse, hurry of respiration, and greater debility, prove that inflammation around some clusters of turbercles is more speedily accomplishing the destiny of the patient. If the inflammation were subdued and the general health improved, per-

haps it might be within the power of the absorbents to remove tubercles if still in an early stage. This view would justify the exhibition of remedies of opposite kinds. No point is better established than that the scrofulous patient is best treated by nourishing and restorative food and medicine, but there are many cases of scrofula in which we must, for a time, substitute bleeding and an antiphlogistic regimen for generous food and stimulating applications, to prevent the disorganization of a viscus, and of such cases this appears to be one.

In hæmoptysis venesections act rather as an alterative than a styptic, mere hemorrhage from the lungs does not justify the measure. Bleeding, however, is amply justified by the existence, during hæmoptysis, of pain, hurried respiration, or any other symptom of parenchymatous or of membranous inflammation.

In cases of hæmoptysis with inflammatory symptoms, venesection may be necessary during the attack, but generally tartar emetic in nauseating doses, given every hour, or every two hours, proves a more powerful styptic: one-third or one-fourth of a grain of tartar emetic in a draught containing also ten or fifteen grains of nitre, a combination which is often powerfully diuretic, will be still more efficacious. But if respiration be natural, and there be no cough,

stricture, or pain in the thorax, the case will be better treated by small doses of opium, two or three grains of Dover's powder, for instance, every two or three hours; to minute doses of opium may be added, a couple of grains of superacetate of lead or a dose of Ruspini's styptic.

Finally, small bleedings, practised in incipient phthisis, *enable the physician more safely to enlarge the patient's diet, and to prescribe tonics, such as Griffith's mixture or Heberden's ink.* The treatment which I would recommend in incipient phthisis may be stated in a few lines. Journeying, if practicable, or what is better still, in fine weather going from shore to shore in the steamers, short residences at Mallow, or the Cove of Cork, or some favourite spot in England, or, during the summer, in Scotland. Diet as generous as the state of the lungs will permit, in some cases a glass or two of claret, and small bleedings. Sponging the chest and arms with very dilute nitro-muriatic acid, or with five parts of Mindererus's spirit, and one of spirit of rosemary: an issue over the most suspected portion of the lungs, or a succession of blisters, after each bleeding, not much larger than a dollar. A light bitter two or three times a day, with twenty or thirty drops of laurel water, or the nitro-muriatic acid internally, or perhaps some preparation of iron. If I had

time I would explain my reasons for rarely sending patients, in any stage of consumption, to the continent of Europe. I may hereafter address you on this subject, in the mean while I remain,

My Dear Sir,

Yours truly,

J. CHEYNE.

R. J. Graves, Esq. M. D., &c.

CONTRIBUTIONS

TO

OPHTHALMIC SURGERY,

By ARTHUR JACOB, M.D., M.R.I.A.

MEMBER AND PROFESSOR OF ANATOMY OF THE ROYAL COLLEGE OF SURGEONS IN IRELAND.

ON STAINS OF THE CONJUNCTIVA AND OPACITIES OF THE CORNEA, PRODUCED BY THE APPLICATION OF NITRATE OF SILVER, ACETATE OF LEAD, OXYD OF IRON, GUNPOWDER, CHARCOAL, AND SIMILAR SUBSTANCES.

The following notice in Mr. Lawrence's twentieth lecture, as reported in the Lancet, is the only one which I have met with on the subject of stains of the conjunctiva. "The conjunctiva sometimes acquires a livid tint in persons who have long employed the nitrate of silver locally; and as far as I know that change of colour is permanent." This effect of nitrate of silver I have myself for many years noticed in my lectures, and pointed out to pupils attending my practice, and from repeated observations, I can bear testimony to the truth of Mr. Lawrence's

remark. The stain I believe to be indelible, even when existing in the slightest degree. I have not observed that the application of even a strong solution for a fortnight or three weeks will produce the effect, but I believe its continuation for six weeks or two months will do so. One practitioner, who was in the habit of using the solution very freely, so frequently produced this effect, that I have often been able to point out his patients by the colour of their eyes. The colour, in cases where the solution has been used for a short time, is a light olive, sufficiently deep however to produce very obvious deformity, and to be the cause of no slight regret on the part of the sufferer, especially if a female. If a strong solution has been used for a great length of time, the stain is much deeper, colouring not only the conjunctiva of the eye, but also that of the under lid, upon which, from the vascularity beneath, the colour appears still deeper. This effect of nitrate of silver on the conjunctiva is evidently similar to that caused by the application of colouring matters to the villous surface of the skin beneath the cuticle in the process of tatooing, and is an additional proof of the identity of the two structures. The discoloration of the skin by the internal use of nitrate of silver, is another instance of the disposition of the surface of the tegumentary membranes, to entangle and permanently detain colouring matters.

The injury above noticed is not the only one which follows the use of this remedy; the effects of its application to ulcers of the cornea is still more to be dreaded. When applied to such ulcers, either in solution or substance, it either adheres to or becomes entangled in the flocculent surface, and if this surface be not a slough and completely cast off, the nitrate of silver, rendered black or brown by exposure, becomes permanently fixed as the ulcer heals; and constitutes an indelible dark speck. Practitioners, who have been in the habit of using the nitrate of silver freely, will probably doubt that the effects which I have stated are to be apprehended, but I am satisfied, from repeated observation, that what I state is correct. I do not, however, mean to say that these effects necessarily follow in every case, but I believe the black opacity of the cornea is produced most frequently, by the use of the remedy, in the very cases in which the application is particularly recommended, that is, in sloughy ulcers, or ulcers which have just cast off a slough. I entertain no apprehensions that by diminishing the confidence of practitioners in this popular remedy, surgery will sustain any serious loss. I feel greatly inclined to agree with the observation of Mr. Lawrence, "that he does not see how lunar caustic, which has been so much recommended, is to act upon the diseased eye benefi-

cially." That the nitrate of silver may often have been beneficial in the hands of such a man as Scarpa, I believe, but I think that if that able surgeon had seen its general effects in the hands of others, he would not have given so unqualified a recommendation of it. To those, however, who may feel inclined to use the remedy, I have the following recommendation to offer. The surgeon, in place of using a pencil of caustic, as recommended by Scarpa, should scrape a little into fine powder, and then taking up a particle on the moistened point of a fine camel hair pencil, apply it with a steady hand to the ulcer, waiting his opportunity until the eye becomes fixed, and repeating the application until the surface of the ulcer becomes completely white and decomposed: he must, at the same time, take the greatest care to prevent the lid from falling, or the eye from turning up beneath it, until he has washed the surface with a plentiful discharge of water from a finely pointed syringe.

In figure 1. of plate I. I have given a representation of the stain of the conjunctiva, produced by the application of a solution of nitrate of silver in a boy who suffered from scrofulous ophthalmia, followed by an opacity of the cornea.

The injury produced by the nitrate of silver is seldom so great as that which more frequently follows the use of the acetate of lead, yet I do not find any mention of the latter in books. If a solution of acetate of lead be applied to the eye when the cornea is suffering from an ulcer of a particular character, the acetate is decomposed, and a white precipitate is deposited on the ulcer, to which it adheres tenaciously, and and in the healing becomes permanently and indelibly embedded in the structure of the cornea. The appearance produced by this cause cannot be mistaken, its chalky impervious opacity, distinguishes it from the pearly semi-transparent structure of even the densest opacity produced by common ulceration. The degree and form of the opacity is varied as the original ulceration was varied. If the original ulcer was deep and circumscribed, the opacity is chalky-white, dense, and defined. If the original ulceration was superficial and diffused, or composed of numerous small specks of ulceration scattered over the cornea, the opacity presents the appearance of several irregularly shaped dots or specks of a dirty white appearance, as I have represented in plate I. fig. 2. If the ulceration has been attended by a prolapse of the iris, the peculiar opacity forms a complete or partial margin round the place of the prolapse, the structure of the iris not entangling the precipi-

tate as that of the cornea does; such an opacity I have represented in plate I. fig. 3. The opacity appears to be produced at once, and by a single application; I have seen it the day after a drop of solution of acetate of lead had been put into the eye by mistake. In plate I. fig. 4. I have given a representation of an extreme case of this kind. The patient, an old woman, laboured under purulent ophthalmia of about ten days' continuance, with extensive slough of the cornea; as represented in the plate, the slough of the cornea was so completely impregnated with the precipitate that it resembled a patch of wet chalk, and the deposit was made not only on that part but on the conjunctiva covering the eye-ball and lining the under lid, the entire vascular surface being patched and dotted with white. Much of the deposited precipitate was cast off with the slough, and the greater part separated from the conjunctiva, but the eye still retains much of the original appearance. The adhesion of the precipitate to the conjunctiva of the lids is so intimate that it can scarcely be removed by an instrument, but I do not think it is so permanent as the deposit on the cornea. I this day attempted to detach a patch of this description from the conjunctiva of the lower lid by means of a cataract needle, but without effect. I do not think that I can state positively the precise condition of the ulcer which causes this deposit, but it does not take place in

all cases where the acetate of lead is used. I can, however, say that it occurs most frequently where sloughing and ulceration attends purulent or pustular ophthalmia, and when the ulcer presents a dirty white, unhealthy appearance.

It is obvious that the decomposition of the applications so frequently made to the eye is of greater importance, in a practical point of view, than practioners have generally supposed. The subject has only very lately attracted my attention, and I am therefore unwilling prematurely to state the whole of the results of inquiries which I have been making, with the assistance of Dr. Apjohn, the Professor of Chemistry in the College of Surgeons.*

The occurrence of stains of the conjunctiva or cornea, from accidental injuries by coloured or metallic materials, proves that the effects just stated may take place. Every one must have seen the black specks on the conjunctiva of persons who had suffered from an explosion of gunpowder into the face; and I have more than once seen a permanent black spot or streak from the thrust of a burned stick into the eye. Smiths frequently, in forging or chisseling, have particles of iron implanted in the cornea, and if the fragment be removed at once, no stain

* For these results, see note at the end of this communication.

remains, but if allowed to remain until the iron becomes oxydated, a brown speck is produced by the detention of the oxyd in the healing of the small ulcer produced by the injury. Whenever, therefore, I meet with a case in which the iron has been allowed to remain until it has produced this stained ulcer, I scrape the surface with the point of the needle after removing the foreign body. When a patient presents himself the day after the occurrence of this accident, the surgeon should examine the part carefully, to ascertain whether the foreign body has been removed, as he may otherwise be deceived by the brown oxyd adhering to the spot. I have seen small black specks in the cornea, which I could not trace to any of the causes above enumerated, but which were attributed to particles of coal driven into it by explosions in the fire.

How far the stains and opacities, to which I have alluded, admit of remedy, I cannot determine. I have already said that I tried acid solutions, and in the recent deposit of the salts of silver, lead, or iron, on an open ulcer, I have scraped the surface with the point of a needle, and thus removed the foreign matter, but as this cannot always be practised with safety, and may cause a larger opacity of a different character, its utility may be questioned.

ON THE TREATMENT OF OBSTRUCTIONS IN THE LACHRYMAL PASSAGES BY THE PROBES, AND SYRINGE OF ANEL, AND THE SETON, AS SUGGESTED BY MEJAN.

The treatment practised by Anel, Mejan, and many of their cotemporaries, and subsequently by Mr. Ware and other British surgeons, for the removal of obstructions in the lachrymal passages, does not at present appear to receive the favourable consideration which I think it deserves. I am satisfied that the probe is as valuable an instrument in the hands of a surgeon, who has skill and leisure to use it, for the removal of an obstruction in the lachrymal passages, as the bougie or catheter is for the removal of a stricture of the urethra. On the present occasion I shall confine my observations to the simple case of what Mr. Ware denominated an epiphora, or watery eye: the eye is tender, the tears run over the cheek, and on pressing the sac, tears, mixed with mucus or pus, regurgitate through the puncta. I make no pretension to more than some modifications of the methods recommended by others. The first object of the surgeon should be to ascertain the degree of obstruction existing; this he can only do by mechanical means, and the syringe being the instrument least likely to produce injury, should be the first selected. The syringe

and pipes should be carefully examined before using, the piston should be tight and working smoothly, and the tubes perfectly free, otherwise, when the surgeon has passed the point into the punctum, and forced down the handle, the water, instead of passing into the sac, returns by the side of the loose piston, and does not quit the syringe. The inferior punctum is most accessible, the circumstance of the inferior lachrymal canal forming a smaller angle with the axis of the sac than the superior, does not increase the difficulty of the operation. If I operate on the right eye I stand behind the patient, lay the thumb of my left hand on the cheek bone, and draw the lower lid downward and outward, thus bringing the punctum into view, and putting the lachrymal canal on the stretch. If I operate on the left eye I also stand behind the patient, or rather to the left side, and draw the lid down in the same way with my left hand. With the punctum thus exposed, and the canal gently stretched, the surgeon should place the point of the tube of the syringe on the punctum, and gently press in the perpendicular direction until it enters, and then, with all the care the manœuvre requires, depress the syringe, carry the tube fairly into the canal, and inject the fluid. If the water return by the superior punctum, the operator may succeed in compressing the opening with the point of the

finger, but this can seldom be accomplished, except in cases where the gape of the lids is naturally great. If the passage into the nostril be free, the contents of the syringe pass into the pharynx as the patient leans back, and the operator has evident proof that the fluid has passed. If, however, the fluid does not pass into the pharynx, but regurgitates by the other punctum, the surgeon must not at once conclude that the nasal duct is obstructed, but must repeat his efforts to force in the fluid and prevent its return. He may also lay aside the syringe, having filled the sac with water, and then firmly compress the sac with the point of his finger, by which he may force the contents through the opening in the nostril if the obstruction be not complete. I have successfully removed an obstruction by a repetition of this practice alone, in a case where the sac was enlarged by long continued distention. Although the fluid should not perceptibly pass into the pharynx, yet the nasal duct may not be completely obstructed: to ascertain this, coloured, odorous, or bitter infusions may be employed, as infusion of indigo, camphor mixture, infusion of gentian, or any thing else that will prove by its colour when discharged from the nose, its smell in the nostril, or disagreeable effect in the pharynx, that it has made its way through the duct.

The surgeon having satisfied himself that the passage is obstructed, has now to ascertain the nature of the obstruction. Actual dissection has thrown little light on the subject, we must therefore form an opinion from our knowledge of the anatomical structure of the parts, and the effects we have observed from disease. I do not know of any other obstruction than that caused by solid mucus plugging the narrow part of the nasal duct, true stricture complete or partial, or closure of the passage from tumefaction of the mucous membrane produced by inflammatory action. Of the obstruction caused by a plug of mucus I cannot speak positively from experience, although I often act on the conviction of its existence; for example, if I find that water will not pass by syringing, but that I can pass a flexible probe, I again try the syringe, and if the water then flow, I look upon the case as one of this description. I direct the patient to compress the sac often with the point of the finger in the course of the day, to blow the nose frequently, and holding the nostrils to inspire strongly, thus exhausting the air from the nostril and the nasal duct opening into it, and consequently removing the contents. This simple auxiliary means of keeping the passage free is not to be despised. I can state from experience, that if the lachrymal passages be perfectly free and the secretion of tears abundant,

as in raw weather, inspiring suddenly and strongly, empties the sac and duct, and even causes a rush of air through the puncta into the sac. I have been assured by a practioner, upon whose statement I can rely, that he saw an *epiphora*, or watery eye, in an infant cured by the nurse sucking the nose strongly, a practice not likely to be repeated, yet possibly as valuable as it is filthy. Any man acquainted with the mechanism of the lachrymal passages, and the effects of atmospheric pressure, can easily understand how the consequences which I have enumerated may follow the practice.

The obstruction caused by the tumefaction of the sides of the sac from inflammatory action, being so different in its nature, requires an equally different treatment. It may not at all times be easy to distinguish this case, from the simple mechanical obstruction by firm mucus, because inflammatory action and its consequences may follow in the latter. I should suspect the case to be one of obstruction from inflammatory tumefaction if the conjunctiva of the lower lid be very vascular, with flocculi of mucus or pus between it and the eye-ball, if the sac, when compressed, be tender, and afford a considerable quantity of pus or mucus mixed with tears, and if the flow of tears down the cheek has been sometimes much greater than at others.

We have no proof from dissection of the sac being thus obstructed, but we see that the passage is very narrow, that it is lined by mucous membrane, and that inflammatory tumefaction of a mucous membrane, causes obstruction of much wider passages. I begin the treatment of a case of this kind by compressing the sac, and then throwing in some water with the syringe, to ascertain whether the passage be completely obstructed. If no fluid pass, I endeavour to pass a bristle or other elastic flexible probe without violence. If this probe pass, I have additional proof of the obstruction being from inflammatory tumefaction, but if there be a firm resistance to the passage of the probe, permanent stricture is to be suspected. Increased vascularity of the mucous membrane lining the sac, with purulent secretion, obstruction, and watery eye, is not of course to be cured by mechanical means. I cannot altogether agree with Scarpa, that this state of the lachrymal passages arises from the extension of a similar inflammatory condition of the conjunctiva, because we so frequently meet with the inflamed conjunctiva not followed by these consequences, but I believe that the state of the passages, which I have just described, will not be found unaccompanied by the increased vascularity of the conjunctiva of the lower lid. To reduce this vascularity, and correct the tendency to purulent secretion, I do

not know of any other more effectual treatment, than the application of leeches over or near the sac if it be tender to the touch, and of astringent solutions to the surfaces. I have not much confidence in the general abstraction of blood in such a case, and still less in the practice of setting leeches to bite the inflamed conjunctiva of the lid. Astringent solutions, I am satisfied, are of value, not in the inefficient proportion of two or three grains to the ounce of water, but of at least ten grains: I use, if not with the effect of removing the disease, at least without injury, *saturated* solutions of acetate of lead or alum. I fill the sac from the syringe, and if the fluid does not pass into the nostril, I compress the sac to force, at least, a small quantity through; I then put a few drops of the same solution between the lids, and repeat this every day. I prefer the saturated solution of acetate of lead, because I think it is most effectual as an astringent, without acting as a stimulant, and I do not find that it causes the white deposit on the conjunctiva in this case; the saturated solution of alum may also be used with safety and advantage. I have tried saturated solutions of sulphate of zinc and sulphate of copper, in what is called chronic ophthalmia, but they acted much more as stimulants than the lead or alum, and not more powerfully as astringents. If the surgeon shall not have an Anel's syringe at hand, he may in-

troduce the solution thus: having seated the patient in a chair with the head leaning back, he should firmly compress the sac with the point of his finger until it is emptied, and then fill the inner angle of the eye, as full as it can hold, with the solution. After placing the solution thus in contact with the puncta, he should, keeping the head in the same position, draw open the lids, pulling the upper one outward and upward, and the lower downward and outward; thus, by their attachment through the palpebral ligament raising the sides of the sac which had previously been compressed, increasing its capacity, and consequently causing the influx of the fluid by atmospheric pressure, or in common, and perhaps to many more intelligible language, thus sucking it in. I have no doubt that it is thus that the orbicularis palpebrarum muscle acts, and not, as is generally supposed, by *compressing* the sac, an action which any one may see it cannot perform. This application of the saturated solution should be repeated every day, or every second day, and the patient directed to keep the parts cool by repeated sponging with cold water, or the occasional use of a light wet compress.

If the obstruction in the nasal duct be a true stricture, partial or permanent, the treatment must obviously be very different from that re-

commended in the two preceding cases. The stricture is to be removed, and the passage re-established permanently; this I know, from experience, can be accomplished without cutting into the sac. The surgeon having satisfactorily ascertained by the syringe that there is no passage for fluids, should next sound the duct with a flexible probe; for this purpose a hog's bristle answers excellently, the largest size should be selected, as there are very few puncta which will not admit the largest; the bristle should be perfectly grown, the bulb at the extremity round and solid, such as are used by shoemakers, and if the punctum be large, the bulb may be enlarged by the addition of a speck of sealing wax. Such bristles should be carefully prepared beforehand; the bulbs freed from the particles of cuticle which adhere to them, and polished by oiling and rolling them between the finger and thumb: those headed with sealing wax should be neatly made, and care should be taken that the wax will not slip off, by applying it sufficiently hot and burning it in. Other coarse hairs may also be used, and are often preferable to hog's bristles, being more flexible: I have the tail of an hippopotamus which supplies me with this kind of probe of every size required. I take such a bristle as I have described, cut to a length of about three inches, apply the bulb perpendicularly to the punctum, and if it does not enter

press steadily until I see the resistance yield, and that the bulb has entered. I then pass it horizontally, as I before described, until I strike it against the opposite side of the sac, and then turn it into the perpendicular direction. This, however, can scarcely be accomplished, from the flexibility of the bristle, without catching a short hold of it, which cannot be done with the fingers; the operator must therefore seize it in the square nibbed forceps : the small one used for extracting eye-lashes answers well, or common small sized dissecting forceps cut square at the point instead of being pointed. When, by this means, the bristle is turned up into the perpendicular direction, and the bulb down into the nasal duct, it should be pressed against the obstruction with as much force as the bristle will bear, turning, pressing, and relaxing, leaning sometimes to one side, sometimes to another, as a person would manage an elastic bougie against a stricture of the urethra. If after every effort the bristle cannot be passed, recourse must be had to the metallic probe. The surgeon should be provided with a number of silver probes the size of the bristles, and softened so as to admit of being easily bent without breaking; they may be cut to a length of an inch and a half, with a quarter of an inch of the hand-end turned at a right angle in order to be fitted to remain in the passage like a style if necessary,

or they may be left of the usual length, which I prefer, the short probe or probe style, as it may be called, being less manageable. The silver probe, thus introduced, is raised, but can seldom be brought exactly into the line of the sac, in consequence of the prominence of the brow; I therefore here bend it by holding it against the margin of the orbit and depressing the hand end. Thus, having a probe in the duct, bent at a distance of about an inch and a half from its bulb, I push it firmly down, breaking through the resistance until it has sunk to the elbow which I bent upon it, and the patient feels it in the nostril. It may be questioned whether the passage thus made is in the proper direction, the probe may be forced between the bone and periosteum, or perhaps even into the antrum; I can only say that I have often practised what I now recommend, and the result has proved that the probe took the course of the duct. The passage having been thus artificially formed it remains to preserve it; this can only be accomplished by keeping some foreign body in it until it is permanently re-established. If the style probe, an inch and a half in length, has been used, it will do well enough, the angle at which it had been bent near the hand end, preventing it from slipping into the punctum or sac; and this is the advantage of using this short one, which I have already said is not so manageable as a

probe of three or four inches. I am myself in the habit of introducing the probe of full length, and when I have pushed it through the obstruction I bend it at the punctum, and cut it off so as to leave an angle or hook head outside the punctum to prevent its slipping in. This bending and cutting soft silver wire is easily accomplished with a good pair of cutting pliers, such as are used by wire workers. After the probe has been once passed, the surgeon may be unwilling to run the risk of withdrawing it, least he should not be able to get a softer and more flexible one through the same passage. If the passage has been easily forced I withdraw the silver and introduce a bristle probe; if there has been much difficulty in forcing it, it is better to secure the steps we have gained and leave the silver one in. If the silver one be retained it should be adjusted, so as to make the least possible pressure on the punctum or margin of the lid, and if the bristle be left in, the portion outside the passage should be bent and firmly secured to the cheek, or over the cheek bone by court plaster. If the probe be allowed to stand perpendicularly, it drags the punctum towards the nose, and either causes it to be dilated, or ulcerated, and thus spoiled. The only dressing to the part should be a small light compress of old linen kept constantly wet with cold water. The probe should not be allowed to remain

longer than forty-eight hours at the utmost, as it is liable to produce ulceration or dilatation of the punctum: it is to be replaced by catgut. The surgeon having provided catgut of the proper size, should soften the point between the teeth to prevent it from catching against the side of the sac, and with the square nibbed forceps dexterously introduce it, and push it on until a sufficient length has passed. It must not be denied that this is often a matter of difficulty requiring much care and perfect use of the fingers, but it is no more to be abandoned on that account than any other difficult surgical operation. If two or three inches of the gut have been passed into the nostril, the operator need not take any trouble to draw it out through the external nostril, as this will be accomplished by the patient when it has become soft. The portion of gut outside the punctum should be coiled up and secured by bandage on the forehead, and no more dressing than a light damp compress applied. The next day the part should be examined and cleaned, but the gut need not be disturbed; the day after that, however, the portion which hangs from the nostril should be gently pulled until an equal portion of fresh gut from the coil on the forehead is brought to replace that which has been withdrawn. The gut being mere animal membrane, softens and sometimes even dissolves before the second day, it

should not therefore be allowed to remain unrenewed longer than forty-eight hours. About the fourth day from its introduction the gut should be withdrawn altogether, the part well cleaned with a sponge and warm water, the sac compressed, and the patient directed to clear the nostril by repeatedly blowing through it. A stream of water should then be sent through it with the syringe, and the patient should receive particular directions to sponge the part with luke-warm water frequently in the day, to compress the sac repeatedly with the point of the finger, and to make an effort to inspire often strongly with the nostrils closed. The next day it should be syringed again, and if there should be any difficulty to the passage of the water, a bristle probe headed with sealing-wax should be passed and withdrawn, and the syringing repeated. The third or fourth day the astringent solution may be used, as directed in a former paragraph, with the occasional use of the bristle probe, until the flow of tears down the cheek ceases, and the eye resumes its natural appearance. It is scarcely necessary to say that the cure may be tedious even after the passage is re-established, in consequence of the sac and lid retaining their vascular condition and affording purulent secretion; but whatever difficulty or disappointment the practitioner may experience, he should consider the syringe and probes of

Anel, and this seton practice of Mejan, as valuable auxiliaries in the management of the diseases of the lachrymal passages.

In the observations which I have offered respecting the treatment of obstructed nasal duct, I do not mean to supersede or undervalue the labours of others who have written on the same subject, or arrogate to myself any originality. I wish what I have written to be read with the articles on the same subject published by others, especially the observations respecting the proposal of Mejan, in the second volume of the Memoires de l'Academie de Chirurgie, Mr. Ware's Papers on the Epiphora or Watery Eye, and Mr. Travers's directions in his Synopsis of Diseases of the Eye. The latter gentleman evidently describes what he had practised, and many of my observations will be found a repetition of his. To those who *abuse* this mode of treating the disease without having practised it or seen it practised, I wish more experience: to those who *abuse* it because it has been badly and injuriously conducted by some, I recommend to lay aside catheters, sounds, and bougies, because urethras have been torn, false passages made, and prostate glands transfixed.

ON INVERSION OF THE EYELIDS AND EYELASHES, TECHNICALLY CALLED ENTROPIUM AND TRICHIASIS.

I do not think that any operation hitherto proposed for inversion of the eyelids will always afford relief, because the disease is generally a consequence of another disease not yet removed. The inversion of the lids is most commonly produced by protracted conjunctival inflammation, with much intolerance of light and constant discharge of tears. I would advise the young surgeon, where he sees one of the cases to which I allude, to consider which disease he will cure first, and not at once proceed to operate when he could probably cure the inversion more effectually without mutilation; this I say because I have seen such operations performed where the inversion was only a temporary consequence of distressing conjunctival disease. Without enumerating the different methods proposed for the cure of these diseases, which the reader may find amply detailed in Mr. Guthrie's book, I will merely offer what I have to add to the information now extant.

Old persons, especially in confined and unhealthy situations, when attacked by conjuncti-

val inflammation, acquire a habit of squeezing the eyelids together so as completely to invert the lashes, and thus perpetuate their misery; bringing the skin of both lids into contact, and producing a redness and scalding of the surface, which is most distressing. In addition to cleanliness, fresh air, attention to diet, and astringent washes, I have, I think, often found the enlargement of the gape of the lids of advantage without subsequently producing deformity. This may be done by taking a small curved bistoury, with the cutting edge on the concave margin, and passing the point beneath the external angle of the lids until it projects through the skin at least a quarter of an inch from the angle, and then cutting out; it requires no dressing except a slight touch of some escharotic to prevent it from uniting, and it should be drawn asunder every day until healed, and if necessary touched with caustic to prevent it from contracting in granulating.

In cases of inversion of the lower lid, unaccompanied by any greater inflammatory action or its consequence than that produced by the contact of the hairs with the eye-ball, I believe Mr. Crampton's to be a very neat and effectual mode of cure. I perform the operation with some modifications. I am provided with a fine

hook made by turning a common sewing needle of about number eight, and fixing it in a cedar handle. The needle will seldom be found soft enough to admit of turning into a hook, but its temper may be reduced by holding it at the flame of a candle, and it will hold the curve thus given tolerably well; or a number together may be softened, formed into hooks, hardened, and again tempered. I prefer the needle thus prepared, because I never could obtain so neat and well tempered a hook from the cutler. I take such a hook in my left hand and strike it into the cartilage of the lid near the outer angle, and pulling toward me, put the margin of the lid on the stretch, I then divide the lid perpendicularly for nearly a quarter of an inch with a small, probe-pointed, scimitar-bladed knife which I hold in my hand; such a knife as is used for enlarging the incision of the cornea in the operation of extracting a cataract. I make a similar incision in the same way within an eighth of an inch of the punctum, and allow the parts to rest until the bleeding ceases; I then take a fine glover's needle, threaded with a silk ligature, pass it through the skin at the edge or margin of one side of the incision, and through the conjunctival edge or margin of the other, so that on drawing the ligature the divided surfaces may not again be brought into contact exactly as before the incision, but the conjunctival edge of one

be united to the cutaneous edge of the other, and thus the lid gets a direction outward. This I have found not only secures a permanent eversion of the lid, but obviates the deformity of an unsightly notch, which must exist if the edges be not united. The other incision next to the punctum should be treated in the same way, and if there be a considerable quantity of loose skin between the lower lid and cheek, a horizontal fold should be removed, as recommended for the cure of inversion without reference to this operation of Mr. Crampton's. It is necessary however to observe, that neither this operation alone, nor combined with the operation of removing a horizontal fold of skin below the lid, will be sufficient to cure the inversion in old persons who have a large quantity of pursy skin about the eyelids.

Inversion of the upper lid, I have no doubt, may be removed, and the patient often cured or relieved by the operations proposed by Mr. Saunders and Mr. Guthrie, but there must evidently be a great deal of deformity in both cases. I think I have afforded as much relief with less deformity by a simpler operation than the removal of the cartilage, as proposed by Mr. Saunders, or the divisions and ligatures by Mr. Guthrie. I pass the point of the fine hook, above described, beneath the upper lid, and

draw the hook toward me until its point shews through the skin at a distance of about a line from the external angle of the eye, an assistant standing behind draws up the skin of the eyelid to make it tense; I then, with common strait scissors, cut into the upper lid between the point I have hooked and the external angle of the eye, continuing the incision by repeated clips of the scissors along the eyelid, and at a distance of something more than a line from the margin, until I come to the punctum; in fact, I simply clip away the ciliary margin of the eyelid from the angle to the punctum, including skin, cartilage, and roots of eyelashes, and not leaving any notch at either end, but sloping the incision as I cut in at the outer angle and out at the punctum; I thus obtain a regular edge, and leave a portion of the cartilage sufficient to preserve the natural form and motions of the lid.

The inversion of a single eyelash, or of a few together, is frequently as much cause of distress as total inversion of the lid, and is perhaps more difficult to correct. In a case where four or five in a clump turned in from the lower lid, I cut out the portion of lid from whence they grew, about an eighth of an inch in breadth, and brought the lips together by ligature: the operation is nearly the same as that recommended by Sir. W. Adams for the atonic ever-

sion of the lids. In this case, as might have been expected, there was afterwards a distorted growth of a couple of hairs at the cicatrix, but they luckily did not turn in directly on the eye, and the patient was greatly relieved. I should not hesitate to repeat the operation in a similar case. Where single hairs are distorted in growth, I believe the actual cautery, as already proposed, might be used with advantage to destroy the vascular organ from whence the hair is produced. In such case the point of a hot needle must be inserted when the hair is contracted; but such an operation requires a firmness in the patient, and dexterity and rapidity of motion in the operator rarely to be met with. I confess I have only attempted it, and have been obliged to desist from the want of firmness in the patient. As a needle has not sufficient bulk to retain the necessary degree of heat, I took a cube of iron a quarter of an inch square, and drilled a hole through it sufficient to admit a large sized needle fixed in a handle, the point of the needle projecting about half an inch. I then heated the iron cube to redness and ran it down on the needle, to which, of course, it immediately communicated its heat. A spherical cautery with a projecting point might of course be more convenient, but a point as fine as a needle would speedily be burned off in heating. I have altered the direction of single inverted

hairs by running the point of a lancet blade into the edge of the lid immediately to the outside of the root of the hair, and inserting into this little wound a speck of nitrate silver, thus producing a small ulcer, which in cicatrizing altered the direction of the hair. The ancient practice of cementing or glueing the distorted hairs in the proper direction is not to be despised. Where the distorted eye-lashes are long, I am satisfied that they may be brought into the proper direction by keeping them for a fortnight or three weeks cemented to the neighbouring eye-lashes. I pour the strongest alcohol on coarsely powdered shell lac in such quantity as will make a tough varnish scarcely fluid. I take up a little of this on the fine point of a bit of wood and apply it to the distorted hairs and those beside them, matting them together and keeping all in the proper direction by repeated touching until the varnish hardens, which it speedily does by the evaporation of the alcohol. The clot thus formed must be attended to daily and retouched wherever it is giving way.

EFFECT OF TAPPING THE EYE IN HYDROPHTHALMIA, LARGE STAPHYLOMA, AND STAPHYLOMA PELLUCIDUM. METHOD OF REDUCING THE SIZE OF PROJECTING STAPHYLOMA.

In a case of hydrophthalmia in a boy of ten years old, where the eye had acquired

so great an increase of bulk that the lids could scarcely cover it, I determined to give full trial to the practice of tapping. I introduced Mr. Saunders's cataract needle through the margin of the cornea, and turning it slightly in the opening, discharged the aqueous humour until the iris fell against the back of the cornea. The eye was as plump as ever the next day, and no bad consequence having followed, I repeated the puncture the third day with the same result. I continued to repeat the puncture at first every third day, subsequently every second day, and finally every day for six or seven weeks, without reducing the bulk of the eye in any perceptible degree: the only bad consequence which attended the operation was an adhesion of the iris to the wound of the cornea, which has left a slight opacity. It is worthy of remark, that the wound of the cornea was perfectly closed the day after the puncture, an additional proof of the great facility with which wounds of this structure unite, and an additional argument to induce the surgeon to prefer this situation for the introduction of the cataract needle. In a case of common distended staphyloma I punctured the centre of the cornea with a lancet blade about twenty times in succession, without any injurious consequence, and with the effect of slightly reducing the bulk of the eye. After four years the eye has not acquired any increase

of bulk. I have seen a case of staphyloma pellucidum, in which another practitioner had frequently punctured the eye ; it did not appear to have produced any alteration.

In several cases of large staphyloma, projecting between the lids, and producing much distress from the irritation caused by the exposure of the diseased cornea, in place of laying open the eye, as recommended by some, or making a small opening and inducing a slow suppuration as recommended by others, I have passed a fine seton through the cornea with good effect. I pass a fine glover's needle and silk through the apex of the cornea, keeping clear of the iris if possible, tie a short loop upon it, and apply a soft, light, bread and milk poultice. The seton, at first, produces considerable pain and inflammation, but this soon subsides, and suppuration follows until the seton cuts out, leaving the eye sometimes reduced in bulk without total discharge of its contents, sometimes completely emptied, and the sclerotic shrunk into the bottom of the orbit.

In certain cases, protracted ophthalmia, with ulcers of the cornea, is followed by irregular distention of the whole eye-ball. The cornea is enlarged in its circumference, the sclerotic appears to have given way in several places, allow-

ing the black choroid to project in dark elevations, and the whole globe, disfigured by large veins and general livid vascularity, much resembling fungus hæmatodes. It has been proposed to empty such eyes by the same means employed in large staphyloma or overgrown hydrophthalmia. In such a case, where the eye-ball was almost as large as a small hen egg, I cut open the globe from one side to the other, allowed the contents to flow out, and with a pair of scissors and hook removed the whole sclerotic and its remaining contents. The operation was performed in less than a minute; the hemorrhage was inconsiderable, and the part was healed, and the patient was without distress or complaint in ten days after.

IMPROVEMENT IN SPECTACLE FRAMES.

When short-sighted persons first put on glasses they frequently complain of headach, dizziness, heat of the eyes, and other inconvenience; and those who have worn them for a length of time often allow them to become so badly adjusted, from wearing of joints or original bad construction, that the sight, in process of time, suffers material injury. I would advise any person who is obliged to wear glasses to acquire some little knowledge of optics, and especially the property of lenses; it will at least shew him that the adaptation of glasses to the eye is founded on certain unerring principles,

and save him from the disgrace to which hundreds in this city are at this moment subjected by listening to the absurdities of itinerant venders of spectacles respecting their preservers, new inventions, the *cooling* effect of their glasses, and much other trumpery of the same kind. A short-sighted person should select the number of concave glass which affords him most perfect vision, and this requires much care and repeated trials of different glasses directed to the same objects. The glass should be so large that when he looks through the centre the frames shall not interfere with his vision, and the pupil of the eye should exactly correspond to the centre of the glass. Dr. Kitchiner observes, at page 119 of his book of the Œconomy of the Eyes, "to give more assistance to the sight to see a distant object, many persons hold a concave eye-glass very obliquely to the eye, in which position a concave, number, 3, will give almost the same sharpness of outline to objects as $3\frac{1}{2}$ when held parallel to the eye." I have observed the same in using a pair of glasses; when placed parallel to the eye the vision is not so good, and the effect is much less agreeable than when the glasses are inclined. The inclination should also be adjusted to the natural position of the head; in walking, the glasses should perhaps be parallel to the eyes, because the eyes are so frequently directed to objects directly oppo-

site, or a little above them; and in reading or writing at a desk they should be inclined, so as to bring the glass parallel with the book or paper. We may often see a short-sighted person moving along the streets with his face ridiculously elevated, or when reading, with his chin brought down to the chest, from not having his glasses properly adjusted.

The means by which this adjustment may be effected is very simple. Common spectacle frames are provided with double folding side pieces jointed to the eye frame by common knuckle joints, and the two folding side pieces are generally jointed to each other by a lapping riveted joint, but sometimes by a knuckle joint. To obtain the power of adjustment or inclination of the glasses, which I have stated to be so desirable, I have a second joint worked in the side piece as near as possible to the knuckle joint which unites it to the eye-frame. This joint should, of course, be the same as that usually made between the two limbs of the side piece, that is, the lapping riveted joint which allows the second piece to turn on its rivet over the first: such a frame will therefore consist of the following pieces; an eye-frame holding the glasses, and jointed by the usual knuckle joint to a small side piece not more than a quarter of an inch long, which is again jointed to a second limb of the usual length of two or three inches,

united by either the rivet or knee joint to the last piece, which extends to the back of the head, and is looped at the end to take a ribbon, if the wearer should wish to tie his glasses on. When the glasses are put on, the wearer, taking the eye-frame between the finger and thumb of each hand, inclines the glasses up or down until he finds the position in which the vision is most comfortable and perfect, and the tightness of the rivet in the first or short joint will maintain the inclination thus given.

I have found the attachment of glasses, by the frames grasping the head by their elasticity and form, so precarious and uncomfortable that I always tie mine on; but as it is necessary to raise them repeatedly to the forehead, they must be made to hold loosely, or what is much preferable, the string must be elastic. An elastic connexion, to go between the side pieces, may be obtained by bending a few inches of silver wire in a succession of half circles, thus ~~~~~, and hooking it into the loops. My own spectacles consist of an eye-frame jointed to the short limb as above described, and this again to a *single* side piece three inches long, not thicker than strong pin wire, with a small hole drilled through the end to admit the elastic wire. Such a frame rests lightly in the hollow above the nose, scarcely touches the temples, and is elevated or depressed with the greatest ease.

NOTE REFERRED TO IN PAGE 371.

When a solution of nitrate of silver or acetate of lead is dropped into the eye, it immediately becomes turbid, and a white precipitate is deposited. On placing slips of litmus paper, reddened by acid, between the eyelids, the blue colour is immediately restored, proving the presence of an alkali in the tears : *this I find to be the case, not only in a state of health, but in every form and stage of conjunctival inflammation, in which I have had an opportunity of trying it.* I obtained a considerable quantity of the lead precipitate by placing the head in the horizontal position, and filling up between the lids with saturated solution of the acetate, and as soon as the decomposition took place receiving the fluid into a watch glass, and immediately throwing it into distilled water. I may remark, that I find this plan of holding the saturated solution of acetate of lead for some time in contact with the highly vascular conjunctiva which is so frequently a consequence of purulent ophthalmia, by far the most efficacious way of applying it. I collected a considerable quantity of the precipitate in this way from different patients and sent it toDr. Apjohn for analysis, who has been good enough to send me the following memorandum of the result. " The supernatant fluid having been removed by a sucking tube, the precipitate was digested with moderately strong acetic acid, which effected its partial solution with considerable effervescence. The solution having been decanted, the residual matter was well washed with distilled water, and then treated with a few drops of strong nitric acid ; this caused it to disappear, nitric oxide being at the same time evolved, and the solution, when evaporated to dryness, yielded a residuum of a deep yellow colour, entirely destructible by heat. The insoluble matter was therefore of an animal nature. The solution made by the means of the acetic acid was next evaporated to dryness, and

the saline residuum repeatedly digested with alcohol, which took up the greater part of it, and was found upon examination to contain acetate of lead. The portion which resisted the solvent action of the alcohol appeared to undergo a slight diminution by digestion with distilled water, and the solution was rendered cloudy by nitrate of silver. This argues the existence of chloride of lead. Finally, what remained after the action of the water exhibited before the blowpipe, the properties of phosphate of lead. The precipitate therefore thrown down from tears by acetate of lead, may be concluded to consist of a small quantity of animal matter, probably associated with some oxide of lead, of a considerable quantity of carbonate of lead, and of traces of the phosphate and chloride of the same metal. In conclusion I may observe, that the copious effervescence which occurred upon subjecting the precipitate to the action of the acetic acid, would appear to justify the conclusion, that the free alkali of tears is present in the form of carbonate of soda, not of caustic soda, as is usually taught on the authority of Fourcroy.

A CASE OF INFLAMMATION

OF THE

VENA CAVA, ILIAC, AND FEMORAL VEINS,

By JOHN CRAMPTON, M. D., M. R. I. A.,

KING'S PROFESSOR OF MATERIA MEDICA, PHYSICIAN OF STEEVENS'S HOSPITAL, ETC. ETC.

THE following case exhibited some very unusual appearances in the venous system of the abdomen, and as the various symptoms were registered on the admission of the patient, it may prove not uninteresting to give an account of them.

Michael Swords, æt. 14, a boy from a parish school, was admitted into Steevens's Hospital, April 1st, 1830. The symptoms under which he laboured were considerable swelling of the whole abdomen, which was exceedingly large, with fluctuation, tense and sore to the touch, the limbs very much swollen, apparently to their utmost extent, tender on the least pressure, and with large blue veins, very conspicuous, both on the limbs and on the abdomen. The breathing was anxious and disturbed, the pulse frequent,

hard, and occasionally irregular, countenance bloated, with a purple tinge. He could scarcely lie down, and he complained also of distressing palpitation of the heart; his bowels very confined, although he had taken aperient medicines under the direction of Mr. Nicholl, a respectable apothecary in Dawson-street.

His urine was scanty and high coloured. The disease commenced a fortnight before his admission into the hospital, with intense inward pain referred to the epigastric region in the scrobiculus cordis. Mr. Nicholl attempted to bleed him, but the vein receded, and no blood was obtained; leeches were applied, and other efforts to obtain relief were tried. The breathing became more embarrassed, and the dropsical symptoms advanced with extreme rapidity. On examining this boy with the stethoscope the lungs appeared sound, but the action of the heart was occasionally strong, tumultuous, and irregular, and again it was sufficiently quiet.

On the 2nd of April, the day after his admission, he was bled at the arm; calomel, cream of tartar, and jalap were prescribed; he felt easier after the bleeding.

On the 5th, leeches were applied to the chest, and on the 6th, to the tender portions of

the abdominal surface; small doses of elaterium with cream of tartar were directed, with a view of overcoming the extremely torpid state of the bowels, besides a draught with castor oil and spirit of turpentine.

On the 8th, the leeching was repeated, and the treatment in other respects continued. The remedies had succeeded in restoring the secretions, but no relief was obtained; on the contrary his suffering and want of rest were so urgent that opiates were given freely.

On the 10th, calomel and cream of tartar were directed. The right leg and thigh now assumed the appearance of phlegmasia dolens, being swollen enormously, and extremely painful on pressure.

On the 12th, the limb became erysipelatous, with severe pain in the groin, to which leeches were applied. Stupes, poultices, and other means of relief were resorted to, but the limb proceeded to a gangrenous state, and though the dropsical symptoms were a little diminished, the patient died after much suffering on the 17th of April.

The body was examined 36 hours after death, when the following appearances were observed.

Skin jaundiced; superficial veins on the anterior part of the chest, dilated and varicose; lower extremities swollen, particularly the right, which was gangrenous in the anterior and upper part of the thigh, and the inferior part of the leg, in its whole circumference. An incision gave exit to a yellow serum, which, with adipose tissue, occupied the thickness of two inches between the skin and muscles.

On opening the abdomen, the cavity contained a pint of citron coloured fluid, the membranous viscera were pale and free from disease, the stomach contracted and empty, spleen and kidneys natural. The liver was slightly enlarged, its structure of a marbled appearance. The lobulus Spigelii was considerably larger than natural, softened, and of a light yellow colour.

The femoral and iliac veins, as also the cava for three inches and a half above its bifurcation, were contracted, thickened, and partially imbedded in a granular fatty substance, their calibre clogged up by masses of ash coloured lymph, and in some points wider than the rest, by half coagulated blood; an adventitious membrane of a rich carmine colour lined the inner coat of the vessel, and from which it could be dissected, leaving this coat sound, but this with

the external coat, from which it was easily separated, was white and thickened like an artery. This membrane was in some places disorganised, as if it suffered from gangrene.

A large oval tumor, two and a half inches in length, and one and a half in diameter, filled the vein from its entrance into the auricle, to within an inch of the point where the vein was closed; it was connected by slight adhesions to the lining membrane of the vein, solid, composed of fibrine, disposed in cells, enclosed in a delicate capsule of light yellow colour, with slight traces of vascularity through it; a scrofulous tumor the size of a walnut was connected with the former, and made some pressure on the cava.

The venæ hepaticæ were also blocked up with fibrine. The lungs were healthy; the pleura contained a quantity of fluid similar to that in the abdomen; the pericardium contained about six ounces of fluid; the heart was small, but free from organic disease: the head was not examined.

For this account of the appearances after death I am indebted to Mr. Bond, one of the pupils of the hospital, who made the examination in presence of several of the pupils, and who had the kindness to send it to me.

The early symptoms of the disease under which this boy suffered, I had from Mr. Nicholl, who observed something unusual and peculiar in the case, and was therefore anxious to have him transmitted to the hospital. On my first seeing him, 2nd April, it was easy to infer that the abdomen was the seat from whence his suffering primarily originated; intense pain in the epigastrium was the first symptom. The vena cava itself probably was the part first affected with inflammation of its inner coat, the separation of the fibrinous deposit following as a sequel, and this secretion or perturbed action of the vein extending downwards to the iliacs and femorals; when it had arrived at the latter, the usual symptoms of phlegmasia dolens accompanied that state of those vessels, which has been pointed out by the researches of Dr. Davis and Dr. Robert Lee.* The tumor, which was extended to the veins and in which the latter, were imbedded, were probably of an older date and was more gradually developed, but which, partly by compressing the veins, and partly by proving a source of irritation, may possibly have given rise to the inflammation of the inner membrane.

That general hydropic effusion should be the consequence of such a degree of obstruction,

* Med. Chir. Transactions.

or that tumultuous and disturbed action of the heart should attend inflammation of the vena cava, is not surprising. Such sympathetic occurrences are easily explained in those cases where the gradual advancement of the early symptoms of disease, and the order in which they proceed, can be ascertained. A superficial examination might induce a practitioner to consider the heart as the organ primarily concerned, but here the value of the stethoscope was evinced. The action of the heart was not of that character which denotes change of structure in that important organ; no doubt disorder in its function was quite obvious; while the perfect state of integrity of the lungs, although the respiration was embarrassed, intimated that the thoracic organs were not those which were primarily instrumental in the production of the dropsical affection, however they might in the end have conspired towards it by their sympathetic state of disturbance. That a scrofulous diathesis assisted as a pre-disposition, and as aiding the action of the occasional causes, I believe there can be little doubt. In the series of morbid changes, in this instance, some might suppose the external tumors to have been consecutive to the internal irritation of the coats of the veins, instead of having existed as antecedents, but this is a matter of but little consequence.

In a clinical report on dropsies,* in which I investigated a considerable number of dropsical cases, they were almost all found to take their origin from disorders affecting the viscera of the thorax and abdomen, and in many instances they were connected with inflammation: in the case before us we have a new tissue where inflammation leads more directly to dropsical effusion, and it is possible that many of those refractory cases of dropsy which refuse to yield to treatment, may be connected with venous inflammation and its consequences, as in the ordinary occurrence so often met with in phlegmasia dolens; of such cases I have had several, and I have always, in those I have examined after death, found the veins inflamed, and the vessels often plugged up with fibrine and purulent effusion. Now that dissections are performed with more accuracy than heretofore, the changes I have described may be met with in dropsical cases, where the heart, the lungs, the liver, and the serous membranes of both cavities are found in a perfect state of integrity.

The case which I have related, when consigned to me, appeared nearly hopeless; such a disease of a fortnight's standing, where no expedient that had been adopted had given the

* Transactions of the Association of the King and Queen's College of Physicians, Dublin, vol. ii.

slightest alleviation, and where the changes from day to day intimated an aggravation of symptoms, afforded but little grounds for hope.

The remedies used were considered as suited for those cases of dropsy connected with inflammation of the abdominal viscera, and which possibly might have succeeded, had the patient been submitted to treatment previously to the effusion of fibrine into the veins, but this event probably had occurred at a very early period of the attack, and of course would have rendered ineffective any remedial treatment that might have been contemplated

CASES

OF

CANCER UTERI,

WITH OBSERVATIONS

CHIEFLY INTENDED TO ILLUSTRATE THE PATHOLOGICAL CHANGES CAUSED BY THAT DISEASE,

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In giving publicity to the following cases of Cancer uteri, I regret that I must disclaim altogether being able to suggest or point out any new means of giving relief, much less of curing that most formidable and unmanageable disease: but having had, since the commencement of the year before last, fourteen such cases under my own care, and seen four others, some of them appeared to me to be marked with circumstances of sufficient interest to render a record of them desirable, and I hope not unprofitable; in addition to which I propose to subjoin a few observations which the cases appear to require.

CASE I.

On the 15th August, 1827, I was called on to examine Isabella Henry, in Sir Patrick Dun's Hospital. She stated her age to be 41, but appeared older; she had been five months ill, and now complained of severe lancinating pains in the small of the back, and darting "like lances" in different directions through the pelvis, particularly in the left iliac region, in the direction of the sigmoid flexure of the colon, and commencement of the rectum, in which situation she described it as a burning pain, and this sensation of burning was also severely felt about the internal margin of the anus; the lancinating pain extended also down the inside of the thighs, along the course of the obturator nerve.

There was a copious sanious discharge of a fœtid odour from the vagina, and on making an examination I found the os and cervix uteri enlarged, hard, and so low in the pelvis as not to be more than two inches from the external parts: the labia of the os uteri being both enlarged and projecting, made the orifice feel to the touch open and gaping; the surface with which the finger came in contact was very unequal, and communicated the sensation that would be experienced by passing the tip of one's finger over and among the tops of all the fingers of a hand

collected together : the upper part of the vagina and uterus were immoveable, as if firmly united to the adjacent structures.

It is not my intention to give any detail of the subsequent symptoms, or the treatment adopted ; the former were a combination of these wretched items which make the sufferer pray for death as a release from misery ; and the treatment was regulated chiefly with a view to relieve pain ; which was attempted, and in general accomplished by the liberal use of opium, conium, and hyoscyamus, by local blood-letting, the use of the warm hip bath, stupes, and injection of decoction of poppy heads, &c. &c. I should however mention, that, in the first instance Iodine was tried, at first by itself, and then in combination with hyoscyamus, but it disagreed so much that its use could not be continued for more than ten days.

My object in the relation of this case is to direct attention to a circumstance occurring in the progress of the disease, which, although probably by no means unparalleled or unprecedented, is of a nature so unusual, and so interesting, as to deserve particular notice.

The state of the uterus already described soon began to alter, and early in October it was

easy to ascertain that ulceration had begun, and at each succeeding examination I could detect the gradual progress of the destruction that was taking place, until at length it was not easy to feel any distinct boundary of the uterus: all this time however the functions of the bladder and rectum were very little interfered with, except the sensation of burning already mentioned, as felt in the rectum.

On the 23rd of November the patient directed my attention to her feet and legs, which I found to be slightly anasarcous, and at the same time she assured me that she had not passed any water for three days, and that she felt no desire to do so, nor any pain as from a distended bladder; this appeared to me so improbable that I altogether distrusted her account. On visiting her two days afterwards, the 25th, she declared that she had not passed a drop of water since my last visit, nor felt any desire to do so; and I perceived that the anasarca had spread from the lower extremities, and was very apparent in the face and other parts of the body; I now introduced the catheter, but found not a drop of fluid in the bladder.

On the 26th, the anasarca was greatly increased, and still no urine discharged; she had been now six days without passing any, but on the 27th, when the anasarca had become extreme, there

was *suddenly*, according to the patient's account, a gush of water like urine from the vagina; this continued without intermission for forty-eight hours, and in such quantity that it streamed through the bed and ran about the room; while the anasarca as rapidly decreased, so that on the third day, the 30th, there was hardly a trace of it remaining in any part of the body, nor did it again recur, but there was incontinence of urine; and on examination I found that a portion of the posterior part of the cervix of the bladder had sloughed away, leaving an aperture into which the thumb would readily pass, opening from the bladder into the vagina.

Here then was an additional and grievous evil added to those already existing. A few days afterwards the stomach became irritable, rejecting every kind of food or drink, and when it was quite empty the retching continued to such a degree as to add greatly to the misery of the patient; to relieve this I tried in vain all the usual modes of relief, opium, aromatics, leeches, &c., none of them were productive of benefit: under these circumstances, and as a last resource, I ordered, Dec. 3rd, folds of lint soaked in the acetum opii to be applied over the stomach, and renewed, when they dried; this application succeeded, and in about two hours the retching and sickness of the stomach were

completely relieved, but the relief thus obtained was only transient; in a day or two the vomiting re-commenced with as much violence as ever, and continued almost incessant during the remainder of the patient's life, in defiance of every means that could be thought of for her relief.

From this time nothing else occurred which appears necessary to mention, except the recurrence of profuse uterine hemorrhage, of which she had repeated attacks all through her illness. On the 24th, death relieved her from incessant agony.

INSPECTIO CADAVERIS.

Twenty-four hours after Death.

Extreme emaciation of the body; on opening the abdomen, *the great omentum* was perceived descending into the pelvis, *and attached all over the fundus uteri and uterine extremities of the fallopian tubes* by such strong bands of adhesion, that the parts are now suspended in the preparation jar by the omentum, without any other support. The next object which attracted my attention was the remarkable appearance of the ureters, as they ran down into the pelvis; they were distended to the size of the large intestine of an infant; either of them would have admitted without difficulty the introduction of my finger,

and in consequence of this extreme distention, their coats were so attenuated as to be quite transparent; their length also was nearly doubled, in consequence of which they pursued a very serpentine course; the kidneys were healthy.

I dissected out the kidneys with the ureters without dividing the latter, and having cut the omentum across near the stomach, I removed all the pelvic viscera, preserving their natural connexions. Having made a longitudinal section of the rectum from behind, I found that at about eight inches from the anus there was a stricture of the gut, which reduced its diameter to scarcely half an inch: the intestine, for about two inches above this stricture, and four or five inches below it, presented on its internal surface the true scirrhous deposit, and its coats, especially about the stricture, were greatly thickened; the portion next the anus was healthy, if I except two or three hemorrhoidal tumors near the verge of the anus. I next made a longitudinal division of the posterior wall of the vagina, which shewed the dreadful ravages that had been caused by the disease; all the cervix and great part of the body of the uterus were gone, and what remained of the organ was double the natural size and thickness: anteriorly the disease had, as I already knew, seized on the bladder; the posterior surface of which, com-

prising the cervix *and entrance of the ureters*, it had destroyed, leaving an opening equal in diameter to a half-crown piece: the internal surface of the bladder exhibited the same morbid alteration that existed in the rectum.

OBSERVATIONS.

The pathological changes here observed account in a very satisfactory manner for some part at least of the symptoms, the cause of which during life was, at best, but a matter of conjecture, I allude to the suppression, and afterwards incontinence of urine, and their relation to the anasarca.

It seems to me almost demonstrable, that the cause of the suppression of urine was the mechanical closure of the orifices of the ureters by the thickening of the parts surrounding them, which took place in consequence of the inflammation (which I believe to be always the first stage of carcinomatous affections) having seized on that part of the bladder; so that the urine could not effect its entrance into that organ, while at the same time it was rapidly secreted by the healthy kidneys, and poured into the ureters until they became greatly distended, and then another process was set up in the system to compensate for the usual urinary excretion, and the superfluous

fluids were poured into the cellular membrane in different parts of the body, from whence they were again as rapidly recalled as soon as a vent was re-established for their discharge, which we know was effected by the death and separation of that portion of the bladder into which the terminations of the ureters penetrate, in consequence of which, incontinence took place, and a perpetual draining of fluid from the system was established, by which, as already mentioned, the anasarcous effusion was completely removed at the end of two days.

A change in the state of the urethra took place in this patient, which I have almost always observed to happen when the bladder becomes involved in the disease, and particularly when urine is discharged from it without passing through the urethra. I allude to a remarkable contraction of the external extremity of that duct, and of its orifice in particular, so that even a small catheter or bougie cannot be introduced without considerable difficulty, and of course the infliction of much pain; in consequence of this, if an attempt be made to introduce the same catheter which we may have used with the patient, previously with the utmost facility, it will be found quite impracticable to pass it without causing great distress and pain: aware of the

probable existence of this constriction, we should therefore in such cases, I think, always use an instrument of a small size.

I shall take more particular notice of the union between the great omentum and the diseased organ, when I have mentioned another case in which the same circumstance was observed to have taken place.—See observations on Case IV. p. 435.

CASE II.

February 9th, 1828, I was requested to see Anne Clarke, in Sir P. Dun's Hospital. She was 52 years of age, had had eleven children, and miscarried once, her youngest child was nine years old.

In December, 1827, she first perceived a swelling of the left thigh, accompanied with some pain and soreness about the groin; when I saw her the whole of the left limb was considerably swollen and anasarcous, and some of the inguinal glands at that side were enlarged, hard, and tender to the touch; she complained also of some pain along the limb, and of sharp pains in the lower part of the abdomen, and darting downwards through the pelvis towards the uterus; she had some leucorrhœal discharge from

the vagina. On examination I found the os and cervix uteri enlarged, indurated and very irregular, and the parts about the upper end of the vagina consolidated into one mass, so that the uterus was quite immoveable ; the functions of the bladder and rectum were not interfered with, and the appetite was tolerably good.

Under these circumstances I determined on trying the effects of Iodine, and ordered ten drops of the tincture to be taken three times a day; she continued to take it for a fortnight, when it began to disagree so much with the stomach that she could not continue its use ; at first I thought it was doing some good, as the parts seemed to be getting softer and smaller, but the hope was illusive : the discharge from the vagina shortly afterwards changed its character all at once, and pus, mingled with a brownish matter and small shreds were discharged abundantly : from this time the case exhibited all the melancholy train of symptoms and sufferings from which " temporary relief will be found only in opium, and permanent rest only in the grave." Days of agony and sleepless nights made the unhappy patient pray hourly for death, which, however, was long deferred.

It may not be uninteresting to remark, that in this case, and indeed in every other of the

same kind, I have found the acetum opii more effectual for the alleviation of pain and for procuring sleep, than any other preparation of that medicine, and it seemed to agree best when given in the form of an effervescing draught, or what appeared to answer still better, with cinnamon water and syrup of ginger.

During the progress of the disease she began to complain of some difficulty in passing her stools, which she attributed to "some bone having got loose, and slipped down into the passage;" conceiving this might arise from hardened fæces, I had the bowels well emptied by purgatives and enemata; but this did not remove the feeling complained of, and apprehending that the rectum might be beginning to be involved in the disease, I made an examination per rectum, and found that the gut, about four inches from the anus, was quite compressed by the enlarged and scirrhous glands in the pelvis, giving rise evidently to the difficulty complained of: all that could be done under these circumstances was to keep the bowels open; to this I attended carefully, and after a short time no further complaint was made.

The last few days of life were spent in incessant misery and torture, which even opium could not assuage; but even to the last, the functions

of the bowels and bladder continued unimpaired: during the progress of the disease she never had any hemorrhage from the vagina, nor did she suffer at any time from irritability of the stomach or vomiting. On the 29th July, death came to her relief.

INSPECTIO CADAVERIS.

Thirty-one hours after Death.

Extreme emaciation of the whole body: the pelvic glands were so enlarged that the cavity of the pelvis was completely filled by them, and the uterus quite borne up out of its natural situation; the rectum also, from the same cause, was pushed out of its usual course and descended along the right side of the sacrum instead of the left, and at about four inches from the anus its calibre was so diminished that it would not receive more than the little finger into its cavity; this portion was completely girt about by the enlarged pelvic glands, and when cut open the coats of the intestine were observed to be considerably thickened at this spot: this at once explained the cause of the complaint made by the patient "that a bone had got into the gut:" in other respects the intestine was healthy.*

* In the Ed. Med. Journ., Jan., 1829, p. 220, a case is recorded in which constipation was induced by this kind of com-

The uterus was very extensively destroyed by the ulceration, as was also the upper portion of the vagina; the cervix uteri and the lower half of the body were altogether gone; the upper part of the body and fundus were reduced to one half of their natural thickness by ulceration on their internal surface, in consequence of which the upper part of the organ was rendered quite hollow, and would easily contain a fig.

The bladder had become engaged in the disease; a portion of it, equal in extent to the size of a crown piece, at the back part and toward the right side, had become affected with true scirrhous thickening, the coats being about half an inch thick, and of almost cartilaginous hardness; but no ulceration had taken place, nor was was there any dilatation of the ureters.

pression, and lasted *nine weeks;* "all efforts to procure the passage of the fæces, either by injections thrown up in great quantity or by bougies, completely failed."

"During this time the patient was subject to occasional pa-
"roxsyms of severe pain in the bowels, accompanied with most
"distressing sense of distention; *but her sufferings were by*
"*no means permanent:* and except upon the occurrence of
"such fits she felt *no very great uneasiness,* and was even
"able to get out of bed and exert herself in her usual
"occupations. Her pulse was little disturbed; her appetite
"tolerably good; and her strength not very materially im-
"paired; no vomiting of fœcal matter; indeed no vomiting
"of any kind occurred during the continuance of the
"disease."

In the integuments of the left side, between the margin of the ribs and the crest of the ileum, there was a small round tumor of about an inch in diameter, which on being cut presented the scirrhous structure; and there were in the omentum some smaller tumors of a similar character. The enlarged pelvic glands, in this case, and I had occasion to make the same remark in several other instances, presented very different characters, some being as hard as cartilage, and uniform in their texture; others of a caseous consistence; while others presented the scirrhous character so perfectly, that I have preserved a section of one of them, as a specimen of that morbid structure.

OBSERVATIONS.

The only remark I shall make on this case is, that the first symptom which attracted attention was the swelling of the left leg and thigh and of the inguinal glands of that side: this state of the parts existed for some time before the patient was sensible of any uneasiness within the pelvis: the state of the parts contained within that cavity shewed clearly the cause of the first alteration noticed in the limb, and from what I have observed both before and since, I think that whenever we meet with œdema of one or both

extremities, accompanied with enlargement of the inguinal glands, and in a short time afterwards symptoms make their appearance, indicative of disease affecting the uterus or some other pelvic viscus, we ought to consider the relation of the symptoms particularly unfavourable, as it seems to depend on very considerable organic changes having taken place internally, before their existence is announced by any marked symptom or external indication.

CASE III.

Sarah Kearney, aged 36, came under my care 12th June, 1828; she had been three months ill, and her illness had commenced by irregularity in the catamenia, followed by uterine hemorrhage, of which she had had repeated and very profuse returns both before and since her admission into the hospital. She complained now of severe pain in the back, darting through the pelvis and down the inside of the thighs, and she had a discoloured and foul-smelling discharge from the vagina.

On examination I found the os uteri low in the vagina, enlarged, hardened, and irregular; the upper extremity of the vagina was consolidated with the surrounding parts, the recto-vaginal septum felt unusually thick and firm,

but no inconvenience was experienced in discharging either the bowels or bladder.

I do not mean to enter into any detail of the daily treatment, but to confine myself to two observations which appear of some interest. First, this was the only case of this disease in which the use of Iodine appeared to be decidedly beneficial, though not permanently so. After regulating the bowels and adopting other measures to relieve pain, I commenced its administration on the 24th July, when she began to take the tincture in doses of seven drops three times a day: at this time she was in a most miserable state, harassed with continual pain, unable to sleep, her appetite quite gone; such was her debility that she could with difficulty turn in her bed, which she was totally incapable of leaving; she had profuse vaginal discharge and occasionally such frightful hemorrhages occurring suddenly, that those about her, thought her on the brink of the grave.

She had not been more than ten days taking the Iodine when a marked amendment was evidently taking place; her appetite was improving, she was able to sit up in bed, felt stronger, suffered less pain, and had considerably less of the vaginal discharge or hemorrhage.

The quantity of Iodine was gradually increased until the 25th of August, at which time she was taking 15 drops of the tincture three times a day. The improvement in her condition now was most encouraging, and indeed surprising ; she was free from pain, had hardly any discharge from the vagina, and no return of hemorrhage ; she ate heartily, was gaining flesh, and was able to walk about the flower garden in front of the hospital : on examining the state of the uterus I found it decidedly reduced in size, much softer, and more mobile.

She continued taking the iodine till the 19th of September, at which time she appeared restored to complete health, and was able to walk three or four miles without fatigue ; such in short was her improvement, that I began to flatter myself with the vain hope that I would see one case at least of cancer uteri recover ; but on the 20th of September she complained of feeling very unwell, with headach and vertigo, her stomach was irritable, and she had nervous tremors : under these circumstances I felt I could not continue the Iodine, to the prolonged use of which I attributed these symptoms, and directed my attention to their removal.

Early in October all the former train of miseries were renewed with just as much intensity

as if the interruption had not taken place: I again administered the Iodine, and she was again relieved, but not so decidedly as before.

The second point to which I alluded is, that this patient exhibited, in November and December, one of the most strongly marked instances I ever saw of the simulation of heart disease; she was affected with violent palpitations, irregular pulse, vertigo, orthopnœa, and most tumultuous action of the heart; but very careful examination of that organ could detect no organic change in it, and the symptoms yielded completely and almost at once to the following combination:

℞ Misturæ Camphoræ, ℥vi.
Tinct. Digitalis, ʒiss.
Tinct. Hyoscyami, ʒiii.
Syrupi Papaveris, ℥ss.
Sumat Cochl. magnum unum 3tiis horis.

She was re-admitted into the hospital in April, 1829, where she remained for about a month, during which time perforation of the bladder took place; she went to the country and died in about a week, some miles from town, so that I had no opportunity of examining the body.

OBSERVATIONS.

The perforation of the bladder was preceded in this patient by a train of symptoms, which although much less marked than in the case of Henry, are I think worth noticing, because I have observed them to occur very generally in such cases, announcing the approach of that miserable change: about five, six, or seven days before the slough takes place the patient tells you she is troubled with the gravel and has great difficulty in passing water, which she accomplishes with pain; next she tells you that she passes much less than usual; and lastly, for a day or two before the incontinence commences, she passes hardly a drop, perhaps none, and then all at once it flows involuntarily. In such cases, after death, I have always found the ureters greatly dilated.—See p. 417. In those cases where considerable disturbance in the functions of the bladder exists perhaps from the commencement, these premonitory symptoms cannot, of course, be distinguished.

The Iodine in this case appeared to restrain uterine hemorrhage, not to excite it, an effect generally apprehended from its use.

This may be considered as an early instance of the disease.

CASE IV.

Esther Henright came under my care on the 7th May 1829; she stated herself to be only 30 years of age, and to have had five children. She told me, that about four months before, she had fallen in the street and struck her hip and side of her belly against the edge of the flags, immediately after which she had a profuse hemorrhage from the vagina, which had frequently returned since, particularly whenever she got into a passion, which was a circumstance of frequent occurrence with her; in the intervals of the hemorrhages she had little or no discharge of any kind, until lately; within the two or three weeks before her admission she began to suffer pain, and to have a constant discharge, which was generally discoloured.

No one from looking at the patient at this period would have supposed her to be labouring under an organic disease, much less one of so malignant a character: she was herself under no apprehension of any considerable danger, but was impressed with a conviction that the fall in the street had hurt her inwardly and was the cause of the few symptoms she as yet experienced.

On examining I was greatly surprised to find

that she was not only affected with cancer uteri, but that the disease had already made great progress, the os uteri was low in the vagina, enlarged, hard, and irregular, and together with the top of the vagina was quite consolidated with the adjacent parts, I thought also from the softened and peculiar feel of one or two spots that ulceration had taken place; in order to be certain of this I introduced a *Speculum uteri* a few days afterwards, and could distinctly see patches of ulceration which had partially destroyed the os uteri and extended to a distance of more than half an inch within the cervix.

Here was no room for hope, the disease continued as usual, slowly to undermine the constitution, armed with all its train of horrors; in July perforation of the bladder took place, preceded by the symptoms already detailed as occurring to Kearney, see p. 431.

In the progress of the disease, the severest pain felt by the patient was described by her as shooting from the centre of the pelvis, through the right hip, and along the thigh and leg of that side, following the course of the sciatic nerve, and this continued throughout the source of the greatest agony complained of; a circumstance which I observed also in another patient affected with this disease; and the best means of giving relief I found to be immersion in the hip-

bath, followed by frictions with a liniment composed of equal parts of compound camphor liniment and anodyne liniment.

The last five or six weeks of this patient's life were grievously embittered by *the most uncontrollable and incessant vomiting*, accompanied with slight pain and tenderness on pressure *over the stomach*, but *not in the other parts of the abdomen*, circumstances which I look upon as very interesting when considered in relation to the pathological changes observed after death, which took place on the 24th September.

INSPECTIO CADAVERIS,

Twenty-four hours after Death.

On opening the body I found the intestines coated with lymph, considerable flakes of which were floating in a sero-purulent fluid throughout the cavity of the abdomen ; the small intestines were in three or four different parts firmly united to the fundus uteri, as was also *the great omentum ;* the cervix, and great part of the body of the uterus were destroyed, and also a portion of the bladder as large as a half-crown, and the ureters were distended to the size of a swan's quill.

OBSERVATIONS.

This patient presented one of the earliest instances of the disease that I have met

with: there is however a case mentioned by Breschet and Ferrus, of a patient who had the complaint at the age of 22. Dict. de Med. tom. iv. p. 191. Patrixs peaks of patients who die of the disease between 25 and 30. Traité sur le Cancer de la Matrice, p. 119.

The length to which the disease had gone in this case without producing any severe or even painful symptom, appears very remarkable; for undoubtedly it must have been going on for some time before the fall in the street, which it appears probable, acted as the exciting cause of the more rapid progress which the disease made, after the occurrence of that accident.

The proofs of severe and long continued inflammation, presented by the abdominal viscera, were very striking, when considered in relation to the fact, that during life the symptoms of that condition were very obscurely marked, tenderness being felt *only over the stomach*, and even there, only occasionally.

This was the second time I had occasion to observe the attachment of the great omentum to the fundus uteri; the other instance was in Henry's case, see p. 417, and in both these patients incessant and uncontrollable vomiting marked the latter periods of the disease, while

in all the others vomiting either did not happen at all, during the disease, or merely as an accidental circumstance, occurring, as it so constantly does, in the progress of any long illness; and in these cases, whatever other adhesions might have taken place as the result of inflammation, (and they were sometimes numerous and important,) the omentum was always found free. Whether there be really any relation between the two circumstances, or how far the pathological change here observed may influence the stomach and produce vomiting, is a question on which I cannot venture to give an opinion: the fact I have observed, as I have stated it; time and further examinations alone can determine its value.

Lastly, I ascertained, from this patient's own statement, that she had been married when only 14 years of age, and that before she was 15 she was severely affected with syphilis, which misfortune she endured more than once afterwards, and had altogether led a very irregular life.

CASE V.

On the 10th of June, 1829, I was requested to see a lady, aged 42, and the mother of twelve children, of whose case I received the following account from herself. In January preceding,

having been much agitated by being suddenly and unexpectedly informed that she must at once resign the only source of income she possessed for her own support and that of her family, she instantly felt a very unusual sensation in the situation of the uterus "as if machinery were turning round inside of her;" she was then seized with a leucorrhœal discharge, for which astringents were prescribed by a physician, without any examination being made, in consequence of which she thought herself much worse in other respects, the functions of the bladder being immediately deranged; but this inconvenience had now ceased altogether.

Up to January she had been perfectly regular in her menstruation, but after the agitation her catamenia stopped; in the month of April she had a considerable hemorrhage from the uterus, and since, she had had a constant watery discharge from the vagina, which still continued in considerable quantity; and on Monday, June 8th, she had a hemorrhage so profuse as to render her friends apprehensive for her life. All through she has had *no pain whatever*.

On making an examination per vaginam, I found the canal filled by a tumor of a very irregular shape, as large as an orange, *very firm* in its texture, divided here and there by sulci so

complete as to form lobules standing out from the tumor; it was *totally insensible*. I could not detect the os uteri any where, nor could I with any tolerable degree of probability judge where the tumor took its rise, but most probably from the substance of the uterus constituting the os uteri. There was immobility of the upper end of the vagina, as if from consolidation with the surrounding parts.

Under those circumstances I gave it as my opinion that the removal of the tumor was the only chance of saving her life, but that the success of the operation was very doubtful. The same opinion, I was then told, had been previously given by two other medical men who had seen her, and was concurred in by Dr. Benson, in consultation with whom I saw the case.

The course I determined to adopt was, to attempt the removal of the tumor by ligature, to which the patient not only assented, but expressed the greatest anxiety to have it done; and accordingly I undertook the operation on the 16th June, at 10 o'clock, A. M., with a Niessen's canula, and with the assistance of Dr. Benson, succeeded, though with considerable difficulty, owing to the shape and attachments of the tumor, in making fast the ligature so as to enclose about two-thirds of the tumor: neither the at-

tempts to pass the ligature nor the tightening of it gave the patient the *slightest pain:* a very small quantity of bloody discharge took place during the attempts to encircle the tumor with the ligature, but there was no hemorrhage on tightening it, or afterwards.

In the evening I tightened the ligature, and continued to do so morning and evening until Thursday 18th, when at my evening visit I found the canula and ligature had come away, the noose of the latter enclosing a portion of the tumor about as large as a walnut, and several pieces came away when a tepid injection was thrown into the vagina; the same thing had occurred also after every tightening of the ligature, attended after the first day by a strong smell of putrefaction.

On examining the tumor next day, I was of opinion that what remained of it was more than half as large as it had been before the operation, and of such a shape as precluded the possibility of re-applying the ligature, even if I had thought of doing so, in compliance with the urgent solicitations of the patient.

On the 20th of June I examined the tumor by means of a speculum uteri; it presented a rough broken surface, having the appearance of

a very unhealthy ulceration; the watery discharge still continued abundant: in order to restrain this, and with other obvious intentions, she was ordered an acidulated solution of the sulphate of quinine, and an astringent injection to be frequently thrown into the vagina.

June 24th. Although the disease had been now going on for more than six months, on this day, for the first time, she complained of some pain, or rather as she expressed it, "a soreness and burning" in the lower part of the abdomen and pelvis, with some slight hemorrhage. The application of a few leeches, followed by tepid stuping and an opiate at night, completely removed all the uneasiness, and nothing worth noticing occurred until July 8th, when on examining I found that a good deal of the tumor had been destroyed by ulceration, which on introducing the speculum I could observe had also spread to the sides of the vagina; the discharge had considerably increased in quantity, and was evidently purulent.

The remainder of the case may be briefly told. On the 22nd July she directed my attention to her feet and ankles, which I found had become anasarcous; from this time the œdema of the limbs increased gradually, and the strength rapidly declined; the ravages of the disease

could be felt extending deeper and deeper from day to day, but *without any accession of pain, or disturbance in the functions of the bladder* or rectum.

On the 5th of September a sudden prostration of strength took place, which rendered her incapable of removing from her bed to a couch, which she had been in the habit of doing every morning previously. She sunk rapidly, and died on the 8th.

INSPECTIO CADAVERIS.

Having obtained permission to examine the body, I did so 27 hours after death.

On opening the abdomen, I was much surprised to find the intestines which lay nearest the brim of the pelvis completely united to the uterus and to each other by a strong cement of organized lymph, so that the whole contents of the pelvis, uterus, bladder, and rectum, together with the cæcum, colon, and part of the ileum, formed one mass: *the great omentum was free.*

Having cut across the intestines so as to leave the adherent folds still united to the uterus and to each other, I proceeded to detach the contents of the pelvic cavity, which I found ex-

tremely difficult to accomplish, owing to their general adhesion and consolidation with each other, and also to the great enlargement of the pelvic glands, several of which were hard, and when cut into presented a scirrhous structure; and an additional difficulty arose from the great facility with which all the textures tore as if they were rotten, even those which are naturally of a firm structure.

Having succeeded in removing the parts, I found the rectum completely identified, with the posterior wall of the vagina and uterus, intimate union having taken place between the opposed peritoneal surfaces; the intestine itself appeared otherwise healthy, except in the great facility with which it tore when pulled through the fingers. On opening the bladder I found almost the whole of its posterior surface internally covered with the peculiar brownish incrustation which in such cases accompanies ulceration of this viscus, which in this instance had taken place in several patches, by which its substance was already so thinned that there could not be a doubt that had the patient lived a short time longer she would have had to endure all the misery of a perforated bladder.

The vagina was ulcerated almost throughout, but particularly towards its uterine extremity,

where there still remained *unaltered*, some of the bunches of tumors which had been recognized during life; but whether they had originated from the vagina or os uteri, or from both, it would be then impossible to say. The cervix and os uteri were completely destroyed, so that it would not be easy to assign the exact situation in which they had been: part of the body and fundus remained, but their texture was remarkably altered both in colour and consistence, the one being changed to an intermixture of brown and inky darkness, and the other softened as if its fibres had been shred out after long maceration.

OBSERVATIONS.

The most interesting question connected with this case appears to be this, Ought it to be called Cancer uteri? or if it ought, can severe pain of a lancinating kind be considered an essential symptom of that disease? for in this case it never occurred. The utmost the patient complained of, was the soreness and sense of heat mentioned as occurring on the 24th June; this was experienced two or three times afterwards, but in a slight degree, and seemed to depend chiefly on the state of the bowels, for it was always completely removed by the administration of a purgative, and giving a carminative

to expel flatus, which frequently annoyed her; but so happily free did she throughout continue from any thing like distressing pain, that she frequently and fervently returned thanks to God that she was permitted to die without suffering.

At first I felt no doubt that the disease was one of those malignant excrescences or polypi described by Levret, Herbiniaux, and still more recently by Gooch, and certainly was of opinion that the disease was not cancer, both on account of the length of time which had elapsed since its commencement and the degree of its development, without pain having been felt; and even still I feel no inconsiderable degree of doubt whether I am justified in placing it here, but I have done so, because in every circumstance during life, *except that of pain*, in its progress and fatal termination, and in the pathological changes witnessed after death, it was completely identified with those other cases of cancer uteri. In some of its circumstances it may be thought to resemble the cauliflower excrescence, but its solid consistence which was retained after death in those parts of the tumor which still existed, and its termination in destructive ulceration, must completely separate it from that disease.

As in the case of Henright, see p. 432, a physical shock appeared to have thrown into

action, parts already pre-disposed to disease, so in this case there can hardly be a doubt that the sudden mental emotion acted as the exciting cause of a similar change.

The absence of any disturbance *in the functions of the bladder* is remarkable when we consider the diseased state of that organ. This patient had been married young, and borne twelve children: she had been twice, in consequence of the profligacy of her husband, very severely affected with syphilis, and had been for many years suffering great mental uneasiness.

I should not omit to mention, that she was strongly impressed with the idea that she had been severely injured in one of her labours by the violent use of instruments in the hands of an unskilful person.

CASE VI.

The disease in this instance occurred in a person of the name of Anne Coffey, who was admitted into Sir P. Dun's Hospital in May, 1828. I mean to notice only one fact connected with the pathological changes caused by the disease.

On the 18th of June the patient informed me that she was much troubled with flatulence,

but that whenever she made an attempt to expel the wind from her bowels it rushed through the vagina; this I ascertained at the instant to be the fact, merely by compressing the abdomen with the hand, and I found that when I introduced my finger into the vagina there adhered to it some substances, which I recognized as the shells of groats with which the gruel was made.

This led me to suspect that an opening had taken place between the rectum and vagina, which surprised me much, as there was no evidence of ulceration having taken place in the vagina, or at the os uteri; but after a very careful examination both by the rectum and by the vagina, I was satisfied that no breach existed in the recto-vaginal septum, which indeed was proved by the fact, that the patient continued to expel the stools naturally by the anus.

A few days before death, which occurred the 26th June, she had a considerable hemorrhage from the vagina, and several large clots of blood were discharged in which there was a mixture of fecal matter. She was by mistake taken away and buried without being examined, which she wished should be done, from an idea that she was pregnant.

OBSERVATIONS.

This was the only case under my own care, in which I had reason to think that the destructive ulceration commenced, in the first instance, towards the fundus uteri, which I have very little doubt occurred in this case, and union having previously taken place between the diseased organ and some fold of intestine, the latter became perforated, in consequence of which the substances already mentioned passed at once into the uterus, and escaped from the vagina.

This is rather a rare occurrence, of which, however, I saw one other instance, in an examination after death, in which an opening had been made by the ulceration, in the centre of the fundus, and into the ileum, which had become united to it.

CASE VII.

Jane Shannon, aged 50, was admitted into Sir P. Dun's Hospital, in May 1828, complaining of pain in the back and shooting through the pelvis, with constant leucorrhœal discharge from the vagina, sometimes tinged with blood, and occasionally a slight hemorrhage. On examination, I found a firm ring or band surrounding

the vagina, at about an inch and half from its pubic end; this ring, which was as hard as cartilage, appeared about half an inch broad, and constricted the cavity of the vagina at that part to a diameter of about half an inch; it required considerable force to pass the top of the finger through the stricture thus formed, and when I accomplished this, I could just touch the os uteri, which was irregular, hard, and gaping.

I ordered purgatives, hip-bath, and cupping over the sacrum, but she refused to adopt the treatment directed, and left the hospital; so that I heard no more of her till September 21st, 1829, when she was readmitted into the hospital, suffering great pain in the small of the back and shooting through the pelvis, with a foul discharge; she had not fallen away in flesh, but she had become very nervous; speaking to her, even in the gentlest manner, was sufficient to set her trembling: the pain was sufficient to prevent her sleeping, and her appetite was very bad; the bowels were much confined; she had no vomiting. On examination per vaginam, I found the circular band nearly in the same condition as when I examined her sixteen months before, but after insinuating the finger beyond the constriction, I could ascertain a considerable change to have taken place in the state of the os uteri, which was now much less promi-

nent, and felt soft and indistinct; it in short communicated the sensation usually given by this part when in a state of ulceration.

Wishing to be more fully satisfied as to the exact state of the parts, and having during two or three days paid attention to regulate the state of the bowels, and to afford relief from pain, on September 25th I introduced a *Speculum uteri* as far as the contracted part of the vagina, and thus obtained a full and distinct view of the parts beyond, which were in a frightful state of ulceration, spreading in every direction that could be brought into view. The os uteri was almost entirely destroyed, and the ulceration could be seen extending to a distance of nearly an inch within the cervix, which would have admitted the introduction of one's little finger.

At this period she did not complain of any uneasiness affecting the bladder; but in answer to a question on that subject, she told me that she could not retain her water long, not more than two or three hours, as it then came away from her without her consent: but a few days after this, she complained of complete incontinence of urine, to which was soon added a total loss of power to retain the contents of the rectum, so that for more than a week before

her death the vagina was the common outlet for the foul discharge of the uterus, mingled with the urine and fæces : in this state she continued till Wednesday, Oct. 7, when, after making some exertion in changing her posture, she suddenly complained of a piercing and burning pain in the pelvis, of a character quite different from any thing she had before experienced, and so intense, that nothing could mitigate her suffering, even opium, which was administered every hour, failed in procuring for her any alleviation of pain. She continued in a state of the most fearful agony until the evening of the next day, Oct. 8, when she expired. From the nature of the change, the suddenness and severity of the pain, I immediately conjectured that rupture of the abdominal peritoneum had taken place, and dissection proved that the conjecture was well founded.

INSPECTIO CADAVERIS.

Body not much emaciated, *the great omentum free.* The kidneys were healthy, but the ureters were amazingly dilated and elongated, particularly that at the right side, which was three-fourths of an inch in diameter in some parts, and its pelvis so enlarged, that it would easily have contained a lamb's kidney ; its length was between ten and twelve inches, and its

course necessarily serpentine; the left was not near so large, and the difference is very easily explained by merely looking at the state of the bladder, the portion of that organ which had been destroyed, and which was about the size of a halfpenny, had engaged and destroyed the termination of the left ureter, and consequently the obstacle to the flow of the urine along its channel, arising from thickening of the part, being removed, the distending process ceased; but at the right side the ulceration had not spread to the orifice of the ureter, the last half inch, or more of which, was so completely obliterated by the pressure of the diseased structure around it, that not a drop of urine could pass through it: so complete, indeed, was the obstacle, that I could not with a syringe and pipe, having the ureter bound securely to the latter, force water through it.—See p. 419.

On turning over the fundus of the uterus, we found a rupture in the peritoneum of about an inch and half in length, running across the back part of the uterus and rather to the left side, just where the peritoneum formed its angle of reflection to cover the front of the rectum, union having taken place, below this point, between the opposed peritoneal surfaces, which would otherwise form the cul-de-sac between the vagina and rectum: the rupture had been

evidently the result of the destructive ulceration, which had eaten its way through the back of the uterus, until nothing was left but the peritoneal covering, which gave way after an exertion on the part of the patient.

The parts being now removed from the pelvis, an aperture of about an inch in diameter was found opening between the bladder and vagina, and another of nearly the same size, communicating between the vagina and rectum.

OBSERVATIONS.

This is the only case which has come to my knowledge, of perforation of the abdominal peritoneum produced by Cancer uteri, and death thereby ensuing. I believe it is a very rare occurrence, and that Patrix is not justified in describing the peritoneum as, "souvent perforé," p. 129.

This also was one of the only two cases in which I met the circular scirrhous band surrounding and contracting the vagina, as mentioned p. 447; for the opportunity of examining the other during life, I am indebted to the polite attention of Mr. Thomas Geoghegan; and to his professional zeal I owe the possession of the morbid parts, removed from the body of his patient, which

are now preserved in my museum. The change of structure in the vagina observed in this patient, Shannon, corresponds remarkably to the description given by Breschet and Ferrus, "L'endurcissement squirrheux, dans certains cas, est disposé en forme de zones de peu de largeur, qui embrassent une plus on moins grande partie de la circonference de ce canal membraneux, et quelquefois même elles le rétrécissent a tel point qu' il est difficile d'y introduire le doigt." *Dict. de Med.* tom. IV. p. 197.

CASE VIII.

My only object in noticing this case is to shew the indispensable necessity for making an examination per vaginam, in all cases where there exist symptoms of serious uterine disturbance accompanied with discharges, especially if these occur at the period of life when organic changes are most apt to affect the generative system.

A patient aged 45, applied to me, stating that for the three months previous, she had been labouring under a burning pain in the pelvis, with occasional dartings as of lances, in different directions through that cavity; she had had a considerable discharge, which from her account had been at first leucorrhœal, and afterwards resembling pus; she at the same time experienced

difficulty in passing water, which was accompanied by a severe sensation of burning or scalding in the urethra; under these circumstances she had applied about two months before to a medical man for advice, who from the existing symptoms, pronounced the case gonorrhœa, and prescribed Cubebs, in the use of which the patient persevered for a month, and then finding herself no better, but rather worse, relinquished this medicine. When she applied to me she had been alarmed by the occurrence of one or two hemorrhages, and the discharge having become discoloured and foul.

I proposed an examination, to which she at once assented, and I found the disease of cancer uteri fully established, and so far advanced in its progress, that in four months, she had fallen a victim to its ravages.

CONCLUDING OBSERVATIONS.

If it appears that in the relation of the foregoing cases too little mention has been made of the practice adopted in the treatment of the disease, it should be recollected, that such was not the object of this paper, and even if it had been, I had nothing new to offer on the subject: every thing failed to cure, and the means of relieving pain in such cases are too well known to require even to be mentioned.

Upon the use of *Iodine*, however, as a remedy but lately sanctioned in practice, and by many supposed to possess great powers in cases such as I have been describing, I may observe, that as far as the result of ten of those cases in which I have used it, may warrant me in pronouncing upon its merits, I am of opinion that it will disappoint the expectations entertained of its powers in this disease; at least, it has done so completely, in my hands, in every case except that of Sarah Kearney, p. 427, where it certainly produced extraordinary, though temporary benefit in the condition of the patient, but had little or indeed no power in arresting the progress of the disease.

The use of the *Speculum uteri* also, may to some be a matter of novelty, as it certainly is, of interest. In these cases, and in many others, I have found it a most valuable assistant, by means of which, and in general with very little inconvenience to the patient, we can submit to the eye the state of parts, whose condition otherwise must necessarily be determined by little better than conjecture; let me however offer one observation, in the way of caution, regarding its use in these cases, where destructive ulceration *has been some time going on*; under such circumstances its introduction, however skilfully managed, may be productive of unpleasant consequences,

by lacerating parts already almost eaten through by the disease; one instance of this occurred under my own observation, in which the vesico-vaginal septum, already deeply ulcerated, gave way upon the introduction of the speculum, and incontinence of urine, of course, immediately afterwards took place, and the additional misery thence ensuing was, very naturally, attributed by the patient to the operation, and not to the disease. It will not be out of place to mention here, that I have lately used this instrument in the adoption of a practice which, though now spoken of as new, was accurately described by Nigrisolius in 1665, I mean the application of leeches to the os and cervix uteri; this I have done three times in a case of irritable uterus, and with the most satisfactory effect.

This appears a fit place to allude to the operation of excision so much practised of late on the continent for the cure of cancer uteri; and certainly, as far as my experience has enabled me to judge, I feel quite prepared to declare my conviction of its almost universal impracticability, and of its utter inutility when the disease really exists and is developed: the first morbid changes in the organ usually take place at a time of life when disturbance in function is regarded as a matter of course, and uneasy sen-

sations as a natural consequence, and even these are only occasional, so that the evil creeps on unperceived, until a profuse hemorrhage, an acute pain, or a foul discharge, first sounds the awful alarm to the patient; and when an examination is made, the disease is detected fully formed, and in general with consolidation of the neighbouring parts; the pelvic glands being in the great majority of cases contaminated by the disease, almost from the beginning.

It is moreover quite ascertained, that the disease, instead of first shewing itself in the cervix, or os uteri, very frequently commences in some of the appendages of the uterus involving the surrounding tissues, or in the upper part of the organ, and thence spreading downwards, manifests itself last in the cervix ;* so that even should we succeed in removing the part which we have ascertained to be diseased, we leave *the disease* still behind. As a matter of observation on the subject, I may state, that not one of the cases of the disease which I have met with, would have admitted of or justified any modification of this operation.

* "Lorsque la dégénérescence a commencé sur le corps de l'uterus, il peut être entièrement squirrheux sans que le col paraisse y participer : ce cas, plus rare est aussi d'un diagnostic plus difficile."—*Breschet et Ferrus Dict. de Med.* tom. iv. p. 195.

The dilatation of the ureters, which has been so frequently noticed in the above cases, is referred by Andral, Precis. tom. ii. p. 685, to the pressure of tumors on the bladder, by which its cavity is almost completely obliterated. This explanation is altogether at variance with my observations.

In the case of Clarke, for instance, where the cavity of the pelvis was more occupied by tumors than in any of the others, there was no distention of the ureters, because the disease had not encroached on their terminations in the bladder, while in every instance in which they had become involved in the morbid change the distention was found to exist, and sometimes considerably more at one side than the other, as the termination of the one happened to be more or less involved in the morbid thickening.—See p. 450. And I may add in addition, that within the last week I examined the body of a patient who died of this disease and in whom perforation of the bladder had taken place: there was no tumor to press on the bladder, and while the right ureter was distended to the size of one's little finger, the left remained unaltered.

All the parts described in this Paper are preserved in my museum.

August 26, 1830.

AN ACCOUNT

OF

TWO NEWLY DISCOVERED MUSCLES

FOR COMPRESSING

THE DORSAL VEIN OF THE PENIS, IN MAN AND OTHER ANIMALS;

AND ALSO

OF A SIMILAR PROVISION

FOR COMPRESSING THE VEINS OF THE CHAMELEON'S TONGUE;

By JOHN HOUSTON, M.R.I.A.,

ETC. ETC.

There exists a striking resemblance in the general construction of the penis among the different tribes of the mammalia. In all of them we find corpora cavernosa giving form and bulk to the organ, a corpus spongiosum enveloping the canal of the urethra, together with blood-vessels and muscles, all so arranged as to establish a complete uniformity of design in the construction of the organ throughout the whole of this extensive class of animals.

The structure of the cavernous bodies is now well ascertained. By a variety of processes, such as injection, corrosive macerations, &c., it has been rendered evident, that the whole texture is vascular; that with the exception of the fibrous laminæ which give form and strength to the organ, the entire is composed of vessels, chiefly veins, anastomosing and coiling among each other in a most intricate manner. In man, and some other animals, this part of the penis consists of two cylindrical bodies placed parallel; in others these cylinders are so connected as to appear single; and in all they are fixed by two roots or crura to the pelvic bones. Even in the Cetacea, where the only traces of a pelvis are two slender bones suspended loosely in the flesh, the crura penis have some connection with these rudimental productions. The existence of a bony style in the centre of the cavernous bodies of some of the carnivora is the most remarkable variety to be noticed regarding their structure.

The corpus spongiosum urethræ is likewise composed of innumerable blood-vessels; it is situated underneath the cavernous bodies, envelops the canal of the urethra for a great part of the extent, is generally enlarged into a bulb at the root of the penis, and swells out at its extremity to form the glans. There is much variety in

different animals in the relative magnitude of the cavernous and spongy bodies. In some of the carnivora, as in the dog for example, the glans, when the penis has been injected, constitutes more than three-fourths of the bulk of the whole organ.

The arteries of the penis are derived from the internal iliac : they in general spring from a single trunk on each side, termed pudic, and afterwards make their way through the organ in several directions. Two branches usually enter the bulb, and supply the corpus spongiosum ; two enter the corpora cavernosa by their crura, and two, the arteriæ dorsales, after passing under the arch of the pubis, apply themselves on the dorsum of the penis, and then run forwards parallel to each other, as far as the root of the glans, in which chiefly they are distributed. These several branches not only supply respectively those parts of the organ to which they are distributed, but also hold communications with each other more or less freely in different stages of their course. The most extensive anastomosis takes place between the arteriæ dorsales supplying the glans, and the vessels of the bulb and corpus spongiosum, but both these have communications through the fibrous investment of the corpora cavernosa with the arteries which enter these bodies by their crura.

The veins of the penis agree in number and situation with their arteries, and like them hold numerous anastomoses among themselves. Those which accompany the bulbous and cavernous arteries bear the ordinary proportion to these vessels; and are so inconsiderable as to have been almost passed over in the description of the blood-vessels of the organ. Those which correspond to the arteriæ dorsales are the principal veins for the return of the blood; their magnitude and uniformity of position have been long a matter of general notoriety. Their branches emanate from all parts of the penis: those derived from the corpus spongiosum, wind round the sides of the organ, and coalesce on its dorsum, with those which spring from the glans and cavernous bodies. By the assemblage of all, two trunks are first formed; these run parallel until they arrive near the pubis, where they unite and form a large vessel, which passes singly under the centre of the arch, and immediately after, spreads out into a plexus, covering with its branches the sides of the bladder and prostate gland, and terminating ultimately in the iliac veins. (See Plates IV. V. VI. *g. g.*) While under the arch, the dorsal vein occupies the centre of the upper surface of the penis; and the arteries and nerves lying on each side are generally placed at a short distance, or kept apart from it by a fibrous partition.

In man, and all the animals which I have dissected, the situation of the great dorsal vein is precisely as above described. In the horse, the ram, and some others, in whom the veins of the penis are of great size, perhaps too large to be collected into one vessel, we find them passing the arch of the pubis in several trunks, which however lie closely congregated together. Some varieties also occur in different animals as to the place at which the branches unite to form the single vein, the point at which its re-division is afterwards effected, or the distance of the arteries and nerves from it, but in all, a striking uniformity in this general arrangement will be found to exist.

It is most probable that the veins are the chief, perhaps the only seat, of that sanguineous accumulation which occurs during turgescence of the penis, and that the arteries contribute little more to this state than by carrying the blood into the organ. The extensible and elastic coats of the veins possess a property of accommodation to a variable quantity of fluid which the unyielding and rigid tunics of the arteries will not allow of. A ligature which gives rise to instantaneous turgescence in the vena dorsalis beyond the point of its application, produces no evident alteration in the size of the artery leading into the organ when tied

around that vessel. And in experiments on the penis of living animals, I have seen the greatest variety in the degree of plenitude of the veins, but have never been able to discover any difference in the fulness of the arteries, in its most extreme states of turgescence or collapse.

The veins which emanate from the crura and bulb, bear the ordinary proportion in size to their arteries ; but the dorsal veins are in a vast degree larger than the arteries which they accompany. The former appear to be adapted for the ordinary purposes of nutrition and circulation ; the latter, it is probable, are more connected with a peculiar condition of the organ, erection.

The musculi erectores penis, acceleratores urinæ, and transversales perinæi, are found in most of the mammalia, but vary considerably in development in different individuals ; and in several of them other muscles are added, not present in man. There is much want of decision in our knowledge respecting their uses. The functions which they are supposed to perform, as implied by the names attached to them, cannot, on the ordinary principles of the action of muscles, result from their contraction.

The erectores penis, (Pl. VI. *l.*) cannot by

any effort, so press on all the veins of the penis as to produce congestion in them. The remarks of Haller on this head are very judicious. He says, "venas magnas penis musculi erectores omnino comprimere nequeunt, id ut facerent, oportet ortos esse ab osse pubis aut certe supra penem."—(Vol. ii. pp. 483, 560, 564.) The only veins which, during the contraction of the erectores, could at all suffer compression, are those which emerge from the crura, the most inconsiderable of any; and even they are much removed from muscular influence by the strong fibrous investment of these bodies. We cannot, however, but suppose that they have some participation in the act, though their unfavourable arrangement mechanically disables them from being the sole agents in its production.

Our notions concerning the uses of the acceleratores urinæ, (Pl. VI. *m*.) are equally unsettled; but as regards their influence in producing turgescence, their position is not such as to give them much greater power than the erectores penis, though their more direct application to the bulb, together with the greater delicacy of the investment of that part of the organ, disposes them more favourably for exercising pressure on its veins.

The transversales perinæi, from their remote

situation with respect to all the blood-vessels of the penis, can exert no influence whatever over the circulation through the organ.

It must be evident then, from a consideration of the arrangement of all the muscles, that their combined powers are inadequate to produce that remarkable stagnation of blood which occurs during turgescence in the organ, whilst the widest, and most direct outlet for the fluid, that by the great dorsal veins, remains unobstructed. This insufficiency of cause to effect, has been long known and felt by physiologists; and Haller, who devotes a whole chapter to explain and refute the opposing theories of different writers, impressed with the fact that the ordinary muscles are insufficient to cause the change of condition observable in erections, comes to a conclusion not more satisfactory than the opinion of his predecessors, that the whole phenomenon depends on a more abundant supply of blood, independent altogether of any mechanical agency. He says, "Ego equidem a sanguinis majori copiâ adfluente quam redit, persuadeor totum phenomenon pendere." This theory, like all the others, unsupported by facts, and improbable in its nature, may be looked upon rather as an evasion than as a final settlement of the question, affording room and encouragement for farther investigations on the subject.

In giving rise to that congestion which manifestly occurs in erections, there are most probably two phenomena in operation, the one a peculiar elevation of nervous energy, which attracts through the arteries of the part a sudden and abundant flow of blood ; the other, a mechanical process, by which the blood is detained during the act in the veins of the organ.

The proportionate share which each of these causes exerts can not be easily determined, and perhaps, in different instances, according to the duration or intensity of the congestion, the proportion will be found to vary.

There are many instances met with, among animal bodies, of considerable erectile action, in which a mechanical provision to arrest the flow of venous blood cannot be demonstrated ; such are the turgescence of the nipple, caused by the contact of the infant's lips ; the enlargement of the wattles of the cock at certain periods ; the swelling out under irritation of those tumors known by the name of aneurisms by anastomosis, &c. In these, the turgescence being only transient and inconsiderable, it may consist in little more than an increase of the nervous sensibility, attended with a copious influx of blood, independant of any active mechanical influence.

But though such cases as this occur, in which our evidences of a mechanical application are doubtful, there are yet others, where the organ is large, and where a particular effect is required from its turgescence, in which I hope to demonstrate that such a provision is adopted to detain the venous blood, and give effect and duration to the process.

The establishment of such a fact would be important, and perhaps might justify the inference, that in every case of the kind, though our senses cannot discover it, the accumulation of fluid may, in some way, be directed by mechanical agency.

My attention was first directed to this subject by a communication made to me by the late ingenious Mr. Shekleton. In dissecting the penis of a dog he discovered two muscles connected with the venæ dorsales, and admirably adapted for making such compression on these vessels as to obstruct the current of blood in their canal. But the melancholy event which deprived the world of the fruits of his genius, also stopped his further prosecution of this subject. I afterwards found, on inquiring as to the originality of the observation, that the great Cuvier, whose extended researches have left little room for farther discoveries in anatomical

science, makes notice of the existence of such muscles as these. His allusion to them is however only cursory, and his opinion regarding their functions undecided. The result of my own observations respecting their existence in different animals, and the extent of their influence in producing erections of the penis, together with the discovery of a similar apparatus connected with the lingual veins of the chameleon, I shall now proceed to detail.

The muscles are situated between the arch of the pubis and the penis. I propose to name them *compressores venæ dorsalis penis*. I have found them readily in every animal which I examined. In the dog, wolf, jackall, bear, badger, cat, raccoon, coati-mondi, marmot, aguti, horse, seal, &c. &c., and encouraged by the certainty of their existence in these animals, together with the general resemblance which the muscles, blood-vessels, and erectile tissue in them bears to the same structures in the human body, I persevered in my search for them in man, by a variety of dissections, until at length I discovered them on the 15th of July, 1830, and satisfactorily demonstrated them to many of the pupils and several professors in Dublin, among the latter of whom, I have the privilege of enumerating Drs. Cusack, Jacob, and Graves, whose expressions of satisfaction as

to the presence of the muscles, and their favourable arrangement for exerting pressure on the vena dorsalis, afford abundant testimony of their existence.

In a good sized *dog*, (Pl. IV. fig. 2. *k. k.*) each of the muscles is about three quarters of an inch long, and at its origin one-third of an inch broad: it arises from the posterior part of the ramus of the pubis, about one inch below the symphisis: it thence inclines inwards, and a little upwards, and growing narrow, ends in a tendon which joins that of the opposite side in the mesian line, precisely opposite the common trunk of the dorsal veins. The muscular fibres are red and distinct, the tendon silvery and strong, and divided transversely by a slit, through which the vein takes its course. The slit in the tendon will be readily discovered, when its edges are cleared of a thin fascia, which by being prolonged from them on either side, renders the opening indistinct. At the place where the muscles can exert pressure on the vein the arteries and nerves are removed to a short distance, and separated from them by a fibrous partition.

In the *monkey*, simia viridis, L. (Pl. IV. fig. 1. *k. k.*) the compressores venæ are easily discovered. Their situation is between the pubis

and membranous part of the urethra, where the vein, as in most other animals, is single. The muscular fibres are strongly marked. The tendon formed by their junction is flat and broad, and divided where it crosses the vein into two portions, separated by a small interval, through which the vein is perceptible. The tendon is loosely attached to the vessel, it glides easily over it, but sends no slip underneath, as in the dog.

In the *bear*, urs. arct. L. (Pl. V. fig. 1. *k. k.*) the attachment of the muscles, and the relation of their common tendon to the solitary vena dorsalis, is the same as in the dog, with the exception, that the whole of the tendon is placed on the upper surface of the vessel.

In the *badger*, urs. meles, L. (Pl. V. fig. 2. *k. k.*) the muscles are somewhat long and narrow; and their tendon is divided for the passage of the vein. In this instance the arteries and nerves are placed at some distance from the vein, and perhaps are saved thereby from any pressure of the muscles during their contraction.

In the *cat*, notwithstanding the diminutive size of the penis, the musculi compressores venæ may be found without much difficulty.

In the *coati mondi*, viverra nasua L., they run to the sides of the vein, and are inserted into a fibrous sheath, by which it is enveloped.

In the *aguti*, mus aguti L. (Pl. V. fig. 3. *k. k.*) the muscles arise from the inner edges of the crura penis, and thence form an arch like a sphincter round the vessels. The muscular fibres in this animal meet over the vein without the intervention of any tendinous structure.

In the *horse*, in which the venæ dorsales pass in separate trunks under the pubis, the tendons of the musculi compressores are subdivided into several portions, which run among the vessels, some over, some under, and some in the midst of them; so that, by the union of those of opposite sides, an arrangement is established which gives to the muscles a very considerable power in compressing and closing up the veins. In the other animals, above enumerated, the attachments, form, and position of the muscles, are, with trifling modifications, like those which have been just described, and in all they are easily discovered when the penis has been dissected with care from the pubis.

In *man*, the compressores venæ dorsalis, are

less distinct than in most of the mammalia. They arise from the rami of the pubis, (Pl. VI. *k*.) above the origin of the erectores penis and crura, and ascending in a direction forwards are inserted above the vena dorsalis by joining with each other in the mesian line. They form a thin stratum of muscular and tendinous fibres, about one inch long and three quarters of an inch broad, and may perhaps be looked upon as portions of the erectores penis, which, instead of being inserted into the sides and lower part of the corpora cavernosa, mount over those bodies, to exert their compressing influence on the vena dorsalis. They enclose between them and the penis the vein, arteries, and nerves of this region. Their anterior fibres are distinguished from those of the erectores, by the fibrous attachment of the crura to the pubis; their posterior margins are kept distinct from the front part of the levatores ani, known under the name of Wilson'sMuscles, by the pudic artery, which divides them in its course towards the dorsum of the penis.

The best procedure to display these muscles is the following. Detach the bladder and levator ani with the hand from one side of the pelvis; then divide with a saw the pubis and ischium about one inch from the symphisis, and break off the bones at the sacro-iliac articula-

tion: next dissect away carefully the remaining portion of the pubis from the symphisis, periosteum, and crura penis, and then the compressores venæ, bearing still their natural relations to the crura and other muscles, may be exposed with very little difficulty.

The insertion of the muscles being in a great measure outside the pelvis, they may also be demonstrated without the section of the bones, by cutting on them in front of the pubis, and looking carefully for their tendon at the side of the vena dorsalis: from the tendon the knife may be carried downwards and backwards in the course of the fibres, and nearly the whole of the muscle can be thereby exposed.

It must, however, be remembered, that it will be needless to search for them in a thin emaciated individual, where the other muscles of the perinæum are so pale and soft that even they can scarcely be distinguished. The subject should be robust, and the muscles red, in order to demonstrate them.

In regard to the arrangement of the veins in relation to these muscles, it is precisely as in the other animals spoken of; it is single at the place where the muscles are connected with it, and immediately after passing them is di-

vided into numerous branches, which run backwards on both sides between the bladder and levator ani, to empty into the iliac veins. (Pl. VI. *g. g.*)

The disposition of the plexus, formed by the veins of the penis in relation to the bladder and levatores ani, is a circumstance which merits more consideration than has been given to it. The contraction of the levator ani causing it to press against the sides of the bladder, may contribute to the congestion of the penis; or, on the other hand, the accumulation of urine in that viscus, even in cases where the muscles of the spine are paralyzed, may, perhaps, be the cause of the erections which so frequently attend on such injuries. There is one thing certain, that the painful priapism attendant on retention of urine from over-distention is instantly relieved by the use of the catheter; and a similar condition of the organ in a case of hemiplegia from injury, I have seen removed by the same instrument. On this point I am not prepared to offer any more certain information. I merely throw out the hint, that those to whom such cases may occur, may attend to the connexion between the two inconveniences, priapism and retention of urine, with a view towards determining how far the one may be consequent upon the other.

The use of the musculi compressores venæ is self-evident, and cannot be mistaken; the effect of their contraction will be to close the vein, and mechanically obstruct the current of blood. A simple experiment will prove to demonstration, that such will be the necessary result of their contraction. Let the muscles be stretched in the natural direction of their fibres, and any fluid forced into the vein will not find a passage through the vessel beyond the spot where it is compressed by their tendon: a very gentle pull of the muscles will be sufficient to produce this effect.

In cases where the vein runs through the tendon the pressure will be most efficacious; but even in those in which the tendon is arched over the vein, its descent from the contraction of the muscles will sufficiently compress the delicate tunics of the vessel to produce the required effect. The solitary and naked condition of the vein at this spot adapts it admirably for the application of such an agent; and the attachments and form of the muscles makes them not less ingeniously fitted for producing compression of the vessel. The elasticity of the arteries, and in some cases their distance, or even their separation from the veins by a fibrous partition, guards them against the pressure of the mus-

cles, and secures to the organ an entrance for the arterial blood.

That the musculi compressores venæ should be proportionably less developed, and less readily detected in man than in other animals, is a circumsta ce which might be urged against the use which I have assigned to them. But it would appear to me that an observation of the difference which exists in the relative size of the vena dorsalis, as compared with the other veins of the organ in these animals, will explain away the objection : for in those individuals in which the greater part of the penis is composed of corpus spongiosum and glans, as is the case in most of the carnivora, and where consequently the greater share of blood is returned by the vena dorsalis, I have observed that the muscles are largest, and their tendon most defined and closely connected with the vein. The observation extended to the human subject, only marks the correspondence in the arrangement, and confirms the view I have taken of the use of the muscles, without lessening the plausibility of my theory.

Perhaps, too, their greater development may be connected with the more prolonged state of turgescence, so remarkable in certain of these animals.

But, though the existence of these muscles be thus demonstrated, and the mechanical effect of their contraction on the current of blood through the great veins of the penis be admitted, yet the extent of their influence in the production of erections in that organ still remains to be determined. Is their contraction the sole cause of the phenomenon? or does it perform only a secondary office, that of giving permanency and intensity to the turgescence? With a view to determining this question, the following experiments were instituted.

November the 16th, I made an incision about two inches in length along the left side of the penis of a dog, and to the inner side of the spermatic cord and testicle. The cellular membrane at the root of the penis being divided, a ligature was tied around each of the venæ dorsales, a short way before their junction under the pubis, special care being taken to avoid including either the arteries or nerves in the noose. A few sutures were then made in the skin, and the animal placed aside in quietude. The veins, when first exposed, appeared shrunk and nearly empty, but suddenly became enlarged and full when pressed upon near the root of the penis. Their state of plenitude varied with the application or removal of the pressure, though the obstruction did not at the moment appear

to influence the general size of the organ. During the operation the penis remained flaccid, but shortly after the application of both ligatures, and even before the wound was all stitched, an increase of size in the glans and bulb became manifest. During the day, notwithstanding that the animal appeared languid and cold, an increasing turgescence was perceptible in the penis, which was rapidly augmented on the slightest irritation.

For the two succeeding days the symptoms continued nearly the same. There was a constant thirst, with little disposition for food. There was but inconsiderable local inflammation, and nevertheless the penis became turgid so rapidly on the animal's being approached, that it was sometimes difficult to determine whether or not that condition was permanent, or only brought on by the excitement. On comparing him with a healthy dog, the effects of the operation were made manifest: in the latter the penis, when examined, was always found collapsed, and the rapidity of turgescence, excited by irritation, was neither so instantaneous nor so permanent as in the animal whose venæ dorsales were obstructed.

On the fourth day the symptoms were much aggravated. The animal suffered so much from

the intensity of the turgescence that he became infuriated, and several times was thrown into violent convulsions.

On the 5th day the turgescence continued nearly as uninterrupted and intense as the day before, but the convulsions did not return, and the animal was so lean and exhausted that he could scarcely stand without tottering.

From this period he gradually began to resume his wonted state, and in about three weeks from the time of the operation, the penis had nearly lost that morbid susceptibility to turgescence, which in so marked a degree followed the application of the ligatures on the veins, without however being deprived of the power of taking on this state on exposure to the natural causes which induce it.

It may be necessary to state, in order to account for this return of the capability of erection after the obstruction of the venæ dorsales, and, as might be supposed, after the neutralization of the uses of their compressor muscles, that on dissecting the animal some months after, I found that the vein was fully open where the tendon was connected with it, and received, as before, the blood of the glans and corpus spongiosum, by some collateral vessels which had become

enlarged for its transmission. Injection thrown into the dorsal vein, leaving the glans, found its way by these branches into the trunk, behind where the ligature had produced obliteration. The muscles, of course, under these circumstances, possessed the same control over the circulation in the vein, as previously to the temporary obstruction in that vessel.

This experiment I have repeated several times, and always with the same results, viz. frequent, easily excited, and long continued priapism, attended with sickness, shiverings, and convulsions. In one case paralysis of the hind legs, and death, followed the same train of symptoms, but in all the others a complete recovery was obtained.

Experiment 2d. I operated on another dog in the same manner, and exposed both the dorsal veins and arteries. The veins were left untouched, and the arteries secured by ligatures as near as possible to the symphysis pubis. The obstruction to the circulation in the artery was unattended by any change in the size of the vessel, such as had been so conspicuously produced in the vein when the current of blood through it was interrupted.

The animal evinced little uneasiness after

the operation, compared with the sufferings in the former case : he had no shiverings, and took food as usual ; during the entire day the penis remained flaccid. I examined it frequently, and never found it either turgid or capable of being excited to turgescence.

On the succeeding day the animal was equally free from sickness or suffering ; and the excitability of the penis was less than even before the arteries were tied. On one occasion, only, did the least tendency to erection manifest itself under artificial irritation.

On the days following considerable inflammation of the wound, ending in abscess, occurred ; but, withal, the animal suffered little, and rapidly recovered without the occurrence of any such untoward symptoms as were consequent upon the obstruction to the venæ dorsales.

The first of these experiments is conclusive. It demonstrates that obstruction to the current of blood in the dorsal veins of the penis, gives rise to a condition of the organ more susceptible of erection, and disposed to remain for a much longer time in that state, than when the vessels are uninfluenced by such obstruction. It would appear, however, from the experiment, that blocking up the veins is not the primum

mobile, the sole cause of the turgescence, as this state was excited immediately by the operation; such obstruction would rather seem to heighten and prolong the act, when once kindled by an increase of the nervous sensibility, as was shown by the readiness of the organ after the operation to become turgid under artificial excitement, and the permanency of that state, even during a fit of shivering, fever, and convulsions.

The second experiment, though perhaps a negative one, is not without its value, as it not only shows, that diminishing the influx of blood to the penis lessens its disposition and power to become turgid, just as obstructing the efflux increases such a disposition; but it also meets any objection which might be made to experiments on the ground of the irritation produced by them, as in both cases the injury was the same, with exception of the vessels on which the ligatures were applied.

As to the analogy between the natural operation of the musculi compressores on the veins of the penis, and that of the ligatures, which in the experiments caused an intense and long continued turgescence of the organ, our evidence of it can be only presumptive, for no experiment could well be devised which would es-

tablish it, owing to the concealed situation of the muscles. Nor will I, by asserting the analogy, prejudice the judgment which every one will form for himself on the subject. I only put forward the fact of the existence of these muscles; the peculiar arrangement of the veins in relation to them, and their uniformity of construction in all the animals I have examined, together with the experiments demonstrating the effect of obstruction of the veins in keeping up the turgescence, and the desideratum of such a mechanism among physiologists; I put forward all these as facts which cannot be controverted, and I await their issue, as examined and reasoned on by others, before I shall say, that the whole exhibits as beautiful and striking an instance of the wisdom of the Creator, in the application of mechanical principles to the production of a vital effect, as the whole range of physiology exhibits. The muscles act as flood-gates on the veins, the flow of blood through them is obstructed, and the reservoirs are thereby all filled, and kept full until the required effect is produced; whilst outlets for the fluids are provided by the smaller veins of the crura and bulb, to secure against a bursting of the vessels from over-distention.

The tongue of the chameleon is an organ possessing most extraordinary powers of elongation

and retraction, which are exerted in darting against and drawing into its mouth the objects it feeds on. Its structure and mechanism I have already made the subject of an Essay, which may be found in the Transactions of the Royal Irish Academy for 1828, or in the Edinb. Phil. Journal for April, 1829. Its alliance in structure to the erectile tissues I have established on many facts, and the application of the properties of this tissue to the prehension of insects I have shown to be most efficacious.

The *prehensile* extremity of the tongue is attached to the long style of the os hyoides, (Pl. V. fig. 4. *a*.) through the medium of a second portion, which I have named *erectile*.

The *prehensile* part is round and fleshy ; it is hollowed at the end into a cup, which is smeared with a viscid mucus, and provided with retractor muscles, for entangling and grasping the insects. A pair of long muscles, the hyo-glossi, are supplied for the purpose of retracting this part of the organ, when laden and returning with his prey ; and a central tube surrounded by an annular muscle, accommodates and secures it on the style of the os-hyoides when the organ is at rest in the mouth.

The *erectile* portion is the seat of all those

remarkable changes in length which the organ undergoes in the performance of its functions. When the prehensile extremity rests in the mouth, fitted by its tube and muscle on the slippery style, the erectile portion, in the form of a fine membrane, is folded up in small compass, and thrown into plaits on the root of that bone. In darting out the tongue to seize insects, the erectile portion springs from its collapsed condition, and becomes swollen, elongated, and rigid, pushing before it the prehensile extremity, and striking it against the object in view.

The resemblance of its structure to that of the penis is very striking. Its arteries branch out immediately, and are distributed in fine ramifications all through its tissue. Its veins, which are two in number, take a more determined course. They arise from all parts of the organ, run along the centre of its lower surface, pass close by the hyoid bone and between its cornua, just as the vena dorsales penis runs near to the arch of the pubis, and ultimately, after coursing along the neck, empty into reservoirs at the side of the heart, which, as to function, may bear some resemblance to the plexus formed by the veins of the penis previous to their termination in the iliac veins.

So far the analogy holds good; and I am of

opinion that muscles, similar to the compressores venæ dorsalis penis, exist in an equally perfect state in connexion with the venæ linguales of the chameleon, to complete the resemblance in the organs. I have added a sketch of those muscles, which, from their connexion with the veins, appear to me adapted for exerting on them the necessary compression. (Pl. V. fig. 4. *k. k.*) They are those which I had previously named internal cerato-maxillary. I copy their description from the Essay above quoted. "The internal cerato-maxillary is long and slender. It arises from the anterior part of the side of the lower jaw, and passing thence backwards, on the upper surface of the style and muscles, ends in a tendon, which, after uniting with its fellow of the other side, about two lines before the articulation of the cornu with the body of the os-hyoides, becomes broad, and is inserted into the roots of the posterior cornua." I shall here add, what I have, since this description was written, ascertained to be a fact, that the veins run through openings in this tendon, (Pl. V. fig. 4. *g. g.*) as they are passing between the cornua of the os-hyoides, and that the operation of stretching the muscles will interrupt a current of mercury flowing along their canal, just as the experiment of pulling the sub-pubic muscles by their extremities, arrests the passage of any fluid impelled through the vena dorsalis penis.

The internal cerato-maxillary muscles are amongst the number of those which protrude the style from the mouth, a movement which always precedes the evolution of the tongue. They may also during this action constrict the lingual veins by their tendon, and thus perform the double office of protruding the style, which is the preparatory step, and of operating as compressores venarum, in giving rise to their congestion of blood, which is so conspicuous during the elongation of the organ.

The general resemblance in the construction of these muscles to that of the compressores venæ dorsalis, together with the similarity of the effect produced by stretching them on the current of fluid through the veins which perforate their tendons, affords much reason for considering them as designed for the same uses; and the existence of such a mechanism in both cases may, perhaps, justify the inference, that a mechanical obstruction to the egress of venous blood is necessary to the completion of erection, wherever intensity or duration of the act is an object.

Note.—Professor Barkow of Breslau has lately discovered in the eye of birds, that the blood destined to supply the pecten or marsupium, arrives at it through the medium of a

rete mirabile, and that the latter is compressed by the tendon of the pyramidalis muscle, during its action in drawing the membrana nictitans over the eye-ball. This compression of the arteries carrying blood to the pecten, renders it less turgid at the moment the nictitating membrane covers the eye. We have therefore, in this instance, a piece of mechanism employed to diminish the *afflux* of blood to an organ, precisely similar to that discovered by Mr. Houston, to prevent its reflux.

PLATE IV.—Fig. 1.

Representation of the penis musculi compressores, &c, in a Dog,—natural size.

d. d. The prostate gland.

e. The penis.

g. The vena dorsalis. It consists of two branches, on the dorsum of the penis, which unite opposite the arch of the pubis, to favour the application of the compressor muscle, and instantly afterwards spread abroad into a plexus.

h. h. The arteriæ dorsales.

i. i. The nervi dorsales. The arteries and nerves lie at some distance from the vein, and are separated from it by a fibrous structure, which on one side has been cut away.

k. k. The musculi compressores venæ. Their tendon presents an opening in the centre, through which the vein takes its course.

PLATE IV.—Fig. 2.

The superior surface of the penis; musculi compressores venæ, &c., in the Monkey. (Simia virid. L.)

a. The bladder.

b. b. The vesiculæ seminales.

c. c. The vasa deferentia.

d. The prostate gland.

e. The penis.

f. f. The cut surfaces of the crura penis.

g. g. The vena dorsalis penis.

h. h. The arteriæ dorsales.
i. i. The nervi dorsales.
k. k. The musculi compressores venæ. Their tendon is divided into two portions, both of which rest on the upper surface of the vein.

PLATE V.—Fig. 1.

Representation of the penis; musculi compressores venæ, &c., in a young Bear, (Urs. Arct. L.) about eight months old. Figure of the natural size.

a. The bladder.
d. The prostate gland.
e. The penis; the prepuce slit open.
f. f. The crura penis.
g. g. The vena dorsalis.
h. h. The arteriæ dorsales.
i. i. The nervi dorsales.
k. k. The musculi compressores venæ. The tendon undivided and defined.

Fig. 2.—Representation of the compressor venæ, &c., in the Badger. (Urs. Meles. L.)

e. The penis; part removed.
g. The vena dorsalis.
h. h. The arteriæ dorsales.
i. i. The nervi dorsales.
k. k. The musculi compressores. Their tendon perforated by the vein, at some distance from which lie the arteries and nerves.

PLATE V.—Fig. 3.

Dissection of penis, bladder, musculi compressores, &c., in the Aguti. (Mus. Aguti, L.)

a. The bladder.

b. b. b. The vesiculæ seminales, vesiculæ accessoriæ, and glandulæ Cowperi.

c. c. The vasa deferentia.

d. The prostate gland.

e. The penis.

f. f. The crura penis,

g. g. The vena dorsalis.

h. h. The arteriæ dorsales.

i. i. The nervi dorsales.

k. The musculi compressores arising from the inner sides of the crura, and passing as a sphincter around the vessels.

l. The musculi retractores penis, with their long single tendon running under the penis.

m. The prepuce reflected and excised.

n. The bulb of the urethra.

PLATE V.—Fig. 4.

Lingual veins and compressor muscles of Chameleon.

a. The style of the os-hyoides.

b. b. The anterior cornua.

c. c. The posterior cornua.

g. g. The lingual veins passing through openings in the tendon of the compressor muscles.

k. k. The compressores venarum, or, as named in my Essay on the Chameleon, "internal cerato maxillary."

PLATE VI.

A full sized view of the organs and muscles in the male pelvis, shown by the removal of the left os innominatum.

a. The bladder.

b. The vesiculæ seminales—resting on the rectum.

c. The vas deferens.

d. d. The rectum.

f. The cut extremity of the crus penis.

g. g. The vena dorsalis; double where on the penis behind the glans; single under the pubis, and multiplied into many branches on the side of the bladder, where it is covered by the levator ani.

h. h. The pudic artery ending in the arteria dorsalis.

i. The nervus dorsalis.

k. The musculus compressor venæ dorsalis of the left side.

l. The erector penis.

m. The accelerator urinæ.

n. The levator ani.

REPORT

OF THE

WELLESLEY FEMALE INSTITUTION,

By SAMUEL CUSACK, A.B., M.B.,

ASSISTANT SURGEON TO THE INSTITUTION FOR THE DISEASES OF CHILDREN, ETC., ETC.

In publishing the following brief Report of the proceedings of this Institution, it is not designed to magnify its utility into undue importance, or to make any display of the success which has attended its practice. The object is simply to give such an account of the cases that have presented themselves at the Institution, as will enable the profession to judge of the real merits of an institution which, though long established elsewhere, has not before existed in this city.

The better to convey a correct impression respecting the institution, a few words are premised explanatory of its management.

The business of the institution is conducted by a superintending accoucheur, assisted by

competent pupils who reside in the establishment. Recourse being had, when necessary, to the advice of a consulting accoucheur, physician, and surgeon.

The patients who are desirous of receiving assistance from the institution during their accouchement, make application for tickets some time previously, when their names are entered in a registry book, in which a number of particulars are noted for the purpose of arriving at conclusions, as to the relative proportion of children of each sex, as to the duration of utero-gestation, &c. &c. The number of labour cases attended since the opening of the institution up to the 31st of December, 1828, amounts to 398: of those cases three required instrumental aid for their completion; one the forceps, two the perforator. Amongst the cases of preternatural labour, which amounted to twelve, there were four cases of presentation of the upper extremities, and eight of the breech and lower extremities.

The cases of presentation of the upper extremities, (in all of which turning was performed,) had uniformly favourable terminations, as far as related to the mother. In two cases, however, the child was not born alive; in one the funis protruded with the arm; in the other the mother

had alternately borne dead and living children, and for some days previous to the accession of labour, had not felt any motion of the child. In three of those cases turning was performed with facility ; in the fourth, on introducing the hand, uterine action came on so violently, that it was considered expedient to withdraw the hand. On administering 120 drops of tincture of opium in divided doses, the operation was performed with facility.

The cases in which the inferior parts of the body presented were also favourable in their issue as far as the mother was concerned. The only cases in which the children were not saved, were those in which the head had been jammed in the pelvis by ill directed attempts at extraction previous to application for assistance from the dispensary. These cases were almost entirely left to themselves, till the breech was expelled, when the usual attention was paid (when required) to insure that the face of the child should be turned towards the sacrum of the mother, and after the extraction of the arms the chin was depressed by placing the finger in the mouth of the child in the usual manner, so as to give the head the direction of the axis of the pelvis, and to cause the biparietal, instead of the occipito-mental, to be the moving diameter. In one case, in which the foot rested against the perinæum, and the thighs were forced down

so as to be impacted to a certain degree in the vagina; the feet were extracted gently as far as the ankles, and the case was then left to the efforts of nature.

Two face cases were not interfered with, and the labours, although tedious, terminated favourably both with mother and child.

In five cases the funis was protruded. In some of these cases the pulsation had ceased previous to application for assistance; in the others none of the means recommended in such cases for the preservation of the child appeared admissible. Of six cases of puerperal convulsions, two occurred between the fifth and eighth month; in one the fits were always induced by constipation of the bowels, and after this cause was removed, did not re-appear. One case occurred after parturition; the cause was similar to that of the preceding case. The patient recovered under the employment of venesection, and purgatives; of the remaining cases of convulsions, all of which occurred during labour, one patient was delivered by turning, during which operation the fits were suspended, but recommenced after delivery, and carried the patient off. Another was delivered by the crotchet, who recovered from the convulsions, but subsequently died of peritonitis. In another

case (a first pregnancy) the convulsions appeared at the commencement of labour, the membranes were ruptured by the finger, twenty ounces of blood taken from the temporal artery, cold applied to the head, and injections and purgatives administered. The fits however continuing, the forceps were applied when the head was sufficiently low, and mother and child were both saved.

The convulsions appeared in one instance about twelve hours after the birth of the first twin, the woman having been improperly allowed to remain undelivered of the second all that time. The forceps were promptly applied, and the second child extracted without difficulty, but dead. In this case, instead of the patient being comatose between the fits, she exhibited all the symptoms of delirium ferox, the birth of the second child not seeming to have any effect on her condition, but after the extraction of the placenta she became perfectly tranquil, and the fits did not again appear.

The opinion generally entertained as to the ineligibility of turning for the relief of convulsions, might seem to be corroborated by the result of those cases; however, without at all entering into the discussion of the comparative value of these different modes of delivery under

such circumstances, it should be observed that the case in which turning was employed had been allowed to proceed to such a length before assistance was sought for, that almost any kind of treatment appeared hopeless.

The author recently attended a case of convulsions with Dr. Nicholson. The patient was a short necked, full, plethoric female, about eight months pregnant with her first child. She was attacked with convulsions while dressing for dinner, and in the course of twelve hours had eight fits of well marked violent convulsions: on examination per vaginam, the os uteri was found dilated to about the size of a half crown, the head presenting, and membranes ruptured. By means of copious venesections, shaving the head, and cold applications, with the exhibition of calomel and scammony by the mouth, and the use of enemata, first of soap and subsequently of turpentine, the convulsions were completely subdued, and the patient was delivered naturally of a dead child after an interval of thirty hours, during which she remained quite rational.

This case contrasted with one already related, where the convulsions had ceased on the delivery of the patient by the perforator, but in which fatal peritonitis supervened, would

lead us to conclude, that artificial delivery ought to be limited, except when the pelvis is deformed, to those cases where the forceps can be used, and that turning, or the perforator, should be employed only in those cases where, from the condition of the parts, there appears no risk of exciting inflammation: indeed unless there be strong proof of the death of the child, or we have to deal with a narrow pelvis, it does not seem that under any circumstances is the use of the perforator justifiable. There can be no doubt that convulsions will often cease on artificial delivery being performed, even though in a rude violent manner, but the result in such cases usually is the death of the patient by peritonitis.

Though fully aware that bleeding in some cases is a most valuable and indispensable remedy, the author considers emptying the bowels of no less importance, and the use of cold applications to the head a powerful adjuvant; he is however of opinion, that there are cases in which the disease being the result of nervous irritability rather than of actual plethora, the too free abstraction of blood will only hurry the disease to a fatal termination.

The author was requested to examine a female who had died, during labour, of convulsions, whom however he had not seen during life.

The labour had made so great progess that the head of the child was on a level with the external parts of generation: he examined the different cavities accurately, and found a tumor of a cartilaginous consistence as large as a hen egg, occupying the optic thalamus and the adjoining part of the brain of one side.

Hemorrhage occurred in six cases during labour, caused by the attachment of a small portion of the placenta over the os uteri, and in all it was arrested by the rupture of the membranes, either by the hand or by uterine action.

The cases in which it was found necessary to remove the placenta by the introduction of the hand amount to fifteen; a large number, but which may be accounted for by the circumstances of several applications at the dispensary for assistance, being made solely on account of the retention of the placenta, in consequence of previous mismanagement.

Five of these cases of retention were caused by the irregular or hour-glass contraction; no difficulty was experienced in the removal of the placenta, except in one case, where, co-existent with the stricture of the uterus, there was violent uterine action, and high excitement both vascular and nervous existed; previously to any

attempt at extraction, venesection and the exhibition of opiates carried to the utmost extent, did not lessen in the slightest degree the difficulty of extraction, and the patient died in about ten days afterwards of venous inflammation.

In five cases hemorrhage occurred previous to the delivery of the placenta. Two of these cases were of hour-glass retention : in one sudden death took place about six hours after delivery, although the placenta had been removed without difficulty, and the patient appeared to have completely recovered from the loss of blood, which had not been at all extensive ; no hemorrhage occurred externally, nor on the post mortem examination did any appearance present itself sufficient to account for her death. The uterus had contracted well, and no coagula were found in its cavity.

A few hemorrhages occurring after the delivery of the placenta were arrested by means of pressure over the uterus, by the application of cold, by quietude and the access of air, &c. &c.

A considerable number of abdominal inflammations presented themselves ; at particular periods they were exceedingly prevalent ; at other times equally rare. The type of these inflammations varied with the periods of their

appearance. In December and January, 1827–28, the peritoneum seemed to be the structure most deeply engaged, and the inflammation to be of a phlegmonous character. In March the disease assumed the low typhoid character. In May, 1828, several cases were met with in which the intestinal mucous membrane was the seat of disease: they were characterized by thirst, redness of tongue, or white coating with florid papillæ interspersed, intolerance of light, headach, and obscure abdominal tenderness.

Cases of abortion were exceedingly numerous. This accident is of frequent occurrence amongst the poor of the city, and one in general little minded; the circumstances under which such cases applied for relief were various. In some instances hemorrhage, in others retention of part of the ovum; in others derangement of the general health consequent on abortion were the reasons for application. The hemorrhages in those cases were arrested by means of cold applications, rest, cool air, avoidance of any thing stimulating, &c. &c.; excepting after the sixth month manual extraction of the placenta was not attempted, enemata, purgatives, friction of the abdomen, and binding, being the means employed to promote its expulsion. In a few cases of abortion, at an early period, plugging the vagina was found advantageous in arresting the hemorrhage.

The sequelæ of abortion consisted of vaginal discharges, occasional hemorrhages, and general constitutional derangement; these affections were treated by improving the condition of the system, by the occasional use of purgatives combined with bitters, by attention to diet, air, exercise, &c. &c.

Amongst the most frequent of the diseases of females, were those connected with the function of menstruation. In the treatment of these cases more attention was paid (with some exceptions) to the constitutional, than to the local symptoms, and what are considered specific or directly emmenagogue medicines were but rarely exhibited, and never found effectual. The catamenial derangements consisted in total suppression, in diminution, in excess, in irregularities attendant on their final cessation, and in distressing accompanying symptoms.

These states were accompanied by two very opposite conditions of the system, debility and plethora. In the former, the object principally held in view was to improve, as much as possible, the general condition of the system; in the latter and less frequent condition, depletion, either topical or general, was employed.

Cancer of the uterus was frequently met

with. In every instance, the disease was so extensive as to engage all the soft parts in the neighbourhood of the os uteri, evidently shewing that extirpation of the uterus was, at that period of the disease, totally inapplicable. In the only instance in which a post mortem examination was permitted, the interior of the pelvis was so completely surrounded by scirrhous glands, that some difficulty was encountered in removing its contents.

Some instances occurred in which the os uteri was tumefied, irregular, and tender to the touch, accompanied by a muco-sanguineous discharge, by pain about the back and thighs, anasarca of the lower extremities, loss of appetite, debility, and sallowness of the countenance. They were treated with alterative doses of the pil. hydrargyri, followed by mild saline purgatives combined with bitters; strict attention was paid to their general and dietetic management, and in every instance a perfect, though in some a gradual, recovery ensued.

The recovery of such patients should point out the necessity of sufficient investigation, before we condemn cases as malignant, that may be only obstinate or tedious, and thus submit patients to the hazard of a dangerous, and often an unsuccessful operation.

Two cases of polypus uteri occurred, in which the patients were reduced to a state of the most extreme debility; the tumors were removed by the ligature, and the patients recovered perfectly. One polypus was of the hard, the other of the soft species; the latter was exquisitely tender to the touch, a circumstance worthy of remark, and already noticed by Dr. Johnson in the Dub. Hos. Reports, who points out the error of adopting a diagnosis between polypus and inversion of the uterus, founded upon the tenderness of the uterus in the case of inversion.

In one case of polypus uteri, where the patient had been exceedingly debilitated, the pulsation of the large vessels about the neck was visible at a distance for some months, so that, on a superficial inspection, she might have been supposed to labour under disease of the heart.

The uterine displacements were confined exclusively to prolapsus uteri. Some cases of prolapsus vesicæ and vaginæ were also met with. In one instance, a contracted state of the urethra giving rise to all the symptoms of diseased bladder, was cured by frequent introduction of the bougie.

In several instances, in which females applied early, with all the premonitory symptoms

of mammary abscess, the progress of that affection was completely arrested, by submitting the patient to the influence of tartar emetic.

The remaining cases consisted principally of the diseases of pregnancy, of puerperal diseases, derangements of health connected with lactation, mammary abscesses, vaginal discharges, inflammations, tumors and abscesses about the vagina and external parts of generation, abdominal tumors, &c. &c.

From the end of December 28, to October 29, the number of registered cases amounted to 303. Of these, six were cases of presentation of the breech and lower extremities; one of the superior extremity; one case of face presentation was not interfered with, and the child was born alive. In two instances, the face was turned towards the pubis. In five cases twins were born. The perforator was employed three times, and three females were delivered by the forceps. In one of these cases, the fœtus was acephalous; the labour had been rendered tedious by the large size of the body of the child.

The secale cornutum was employed in upwards of twelve cases, in six it produced no preceptible effect whatever; the author is, however, willing to believe that the ergot employed in

those cases, though procured from respectable druggists, had lost its peculiar properties.

In three instances, where it was employed in half drachm doses, substance as well as infusion being administered, symptoms of an apoplectic nature supervened, such as a diminution in frequency of the pulse amounting to from fifteen to thirty beats in a minute, stupor, epistaxis, &c. &c.

In a case of breech presentation, in a female who had borne several children, ten grains of ergot, given in infusion, were administered ; she had not had any pains for the entire of the preceding night. Pains, however, came on so immediately after the administration of the ergot, as to leave no doubt on the author's mind of its efficacy in that instance. Amongst other instances, a case was treated by Mr. Dashwood, an extremely intelligent pupil, where the placenta, after three hours' retention, was expelled by uterine action consequent on the administration of the ergot, though in the two preceding deliveries of the same patient the placenta was extracted by the hand.

The author cannot forbear relating two cases, where, in consequence of the total absence of pains, he had determined on making trial of the ergot ; in one instance, on returning

to his patient after an hour's absence, he found, that on her taking an aperient draught, which he had prescribed, though no purgative or griping effect had been produced, uterine action had come on so violently as to finish the delivery of the child and placenta before his arrival; and in the other case, before he could procure the ergot, which he had to send for to some distance, such effective pains came on that he did not find it necessary to administer the remedy when it arrived.

In seven cases, the placenta was extracted by the hand; in some of these the ergot had been previously tried, but ineffectually.

In four of these there was hemorrhage connected with the retention of the placenta. One of these cases terminated fatally, notwithstanding the hemorrhage had been completely arrested.

One case of polypus uteri was detected by examination per vaginam. The tumor, which was not larger than a walnut, was connected to the interior of the cervix uteri by a long cord-like pedicle. It was extracted by the fingers, and exhibited vessels running through its diminutive stalk. It was composed of a delicate membrane containing small vesicles, and a gelatinous sub-

stance, that could be drawn out by the finger to some distance.

Notwithstanding the small size of the tumor in this case, the irritation produced thereby was greater than the author had witnessed in any other instance of this disease.

One instance of severe puerperal inflammation of the joints occurred. In this case, in consequence of hemorrhage, the placenta was removed (without any violence) by the hand. The patient did not seem to suffer much from the loss of blood, and was in a favourable condition till the seventh day, when, apparently in consequence of some irregularity, she was attacked with febrile symptoms, and inflammation of the knee and ankle of one leg. The fever was of a mixed character, accompanied with much gastric derangement and acceleration of the pulse, without any increase of hardness. The pain in the parts mentioned preceded the external symptoms of inflammation, but in a short time the joints affected became red and swollen. The calf of the affected leg participated in the tumefaction.

The pain was of so violent a nature as to deprive the patient completely of rest, and to require the use of large opiates.

The treatment consisted in the regulation of the patient's bowels, the administration of calomel, combined with opium and tartar emetic, till ptyalism was produced; frequent application of leeches, and in the intervals a saturnine lotion, was kept constantly applied, protected by a covering of oiled silk. In the progress of the disease a mixture of sulphate of quinine and the compound tincture of gentian was employed with apparently considerable benefit. The inflammation of the knee yielded rapidly to the treatment; that of the ankle was of a more obstinate nature; superficial abscesses formed over that joint. The patient, after some time, was sent to the country, and is now quite recovered. *In no stage whatever of the disease were any symptoms of venous inflammation discernible.*

Two cases of hydatids of the uterus were treated; both of the individuals were married, and one had previously children, and experienced, with the exception of feeling the movements of the child, the usual symptoms of pregnancy. One patient had a constant discharge of a yellowish colour; the other was free from any vaginal discharge till a few days before the expulsion of the hydatids, when there was a slight discharge of blood. In one instance the hyda-

tids were expelled without much accompanying hemorrhage; in the other, there was a considerable loss of blood. The patients were treated, after the expulsion of the hydatids, like puerperal patients; one of them had a considerable quantity of milk in the breasts for a few days, and has since borne a living child. The hydatids expelled in one case amounted to upwards of a gallon; they were of an elliptical elongated shape, connected together by delicate pedicles, and surrounded by a cyst, resembling the decidua.

One patient, affected with a malignant tumor of the os uteri, applied for relief at the dispensary. She was 35 years of age, had borne five children within the last fifteen years, and enjoyed good health till four months previously, when she became troubled with constant shooting pains in the back and loins, and the ordinary symptoms of malignant disease in this situation. Her general health too, was proportionably affected.

On examination per vaginam, a tumor, as large in circumference as a dollar, but much thicker, was found growing from the lower part of the cervix uteri. It was firm and elastic, and a portion of the cervix uteri could be felt

above the tumor, apparently free from disease. After endeavouring as far as it was possible to improve the patient's general health, a ligature was applied as high up as the cervix uteri, by means of the common double canula.

It may here be observed that the ligature employed on this, as well as on other occasions, was composed of catgut, or silk covered with silver wire, as sold at the music shops. Silk is conceived to be preferable to catgut, as the latter, when long exposed to moisture, sometimes becomes rotten.

The degree of firmness and elasticity, which a ligature of this description possesses, even when exposed to moisture, will be found to facilitate its application materially ; and even where there is an anticipation of difficulty in the application of the ligature from the size of the tumor, the author would suggest the trial of the common canula, armed with the ligature here described, before having recourse to a more complicated apparatus.

In the progress of the case the ligature was tightened occasionally, but on the sixteenth day the cervix uteri, not being completely divided, was drawn down, and cut through with a blunt pointed bistoury.

For upwards of a month the patient seemed to have recovered from the disease; recently, however, ulceration has commenced at the place where the tumor was separated, and all the former distressing symptoms have returned.

Though the result of this case was unfortunate, yet the case itself is important, as shewing how far the uterus will bear with impunity the application of the ligature, there being no threatening of peritoneal inflammation or retention of urine during the entire time that the ligature remained on the uterus; and the case under consideration, as well as those cases in which the ligature has been applied on the inverted uterus, induces the author to question the soundness of the advice given by Doctor Gooch, regarding uterine tumors, in his recent work on diseases of females; for while he agrees with him that including any portion of the uterus in the ligature, in cases of polypus, is worse than useless, he conceives that the advice given at page 307, regarding what are there termed fungous excrescences, is calculated to lead to most dangerous results, as it is only by the complete removal of that part of the uterus from which the tumor originates, that any reasonable expectation can be formed of its not again returning.

Should the author again meet with a similar case, he would prefer removing a portion of the uterus with the knife, to the application of the ligature.

The number of cases treated since October last, up to the present time, have, in proportion, considerably increased; but, to avoid repetition, only a few of the more remarkable shall be here noticed. One instance of spontaneous evolution of the fœtus occurred at the seventh month; the child was situated in the manner usually met with, and born dead.

In one case of complete presentation of the placenta, turning was performed, the mother was saved, the child born dead. The most remarkable feature in this case, was the great advantage found to arise from plugging the vagina; the os uteri seeming, in the first instance, too rigid to allow of turning being performed with safety to the patient.

Two cases of hemorrhage after delivery, of an interesting nature, occurred. In one case, application was made for assistance nine hours after the birth of a first twin, in consequence of the retention of a second.

The patient, a healthy young woman, was

much excited, apparently in consequence of having taken some spirits. Her face was much flushed, pulse 130, full and strong; enemata and aperient medicines had been administered without any effect, and no uterine action existed. As the vascular excitement seemed the result of a temporary cause, it was not deemed necessary to have recourse to venesection; and lest some untoward event should occur, it was deemed advisable to deliver the patient; accordingly turning was performed, not without some difficulty, in consequence of the height in the uterus at which the child was placed. It however was born alive, and what was remarkable, very soon became a fine child, while the infant that was born naturally died in a few days.

Every means were taken to promote the safe expulsion of the placenta, which in about half an hour was expelled naturally, and the uterus became hard and well contracted. In a short time, however, most violent uterine hemorrhage came on; cold was promptly applied to the region of the uterus, and pressure made over that viscus, by which means the hemorrhage soon ceased.

In this instance the patient did not become at all faint, nor was any internal stimulus employed except cold water, and the only effect

produced by the loss of blood was the reduction of the pulse from 130 to 90, which also became proportionally soft; a very desirable result. This was evidently a case of hemorrhage resulting from vascular excitement, and shews the necessity of preventing, by attention to temperature, diet, drinks, &c., during labour, so unfavourable a condition of the circulation.

The second case was one of quite an opposite nature, occurring in a weakly female who had borne several children, and each time had slight hemorrhage.

Lest a similar occurrence should take place on the present occasion, the management of her labour was intrusted to a person of some experience; although however conducted most judiciously, the birth of the child was followed by immediate hemorrhage.

This was arrested by means of cold applications, and pressure on the uterus in the first instance; as however it quickly recommenced, the hand was introduced into the uterus, and the placenta, which was found lying detached in that cavity, was withdrawn: the uterus contracted on the hand, and but a slight oozing of blood continued.

The quantity of blood lost in this case was not great, nor did the patient suffer complete syncope, yet for nine hours she lay as if on the point of death; the face bloodless, extremities cold, pulse not to be felt at the wrist, and but faintly in the larger arteries.

The patient was watched through the day; opium, brandy, and ammonia administered in small quantities; she however rejected every thing, and the first thing which she retained was a raw egg beaten up with a cup of tea.*

It might here be asked, if this was not a case in which transfusion would have been recommended by the advocates for that operation, and whether this operation might not have proved fatal in this, as it was in other similar instances.

While on the subject of hemorrhage, the author wishes to allude briefly to the subject of cold applications.

In the only instance of fatal hemorrhage which he witnessed, he found the patient's bed, when he arrived at the house, completely drench-

*The author was indebted on this occasion to Doctor Darley for his valuable assistance; he has also to express his sense of his obligations on many occasions to Dr. Johnson.

ed with cold water, herself apparently as much sinking from the collapse produced by the slovenly application of cold, as from the loss of blood; so that he would caution his junior brethren from applying cold in such cases to any part, except the vicinity of the uterus, by arranging napkins so as to prevent the part of the bed on which the patient lies from being wetted; and when the heat of the extremities is below the natural standard, it is obvious that applying heat thereto, while cold is applied to the region of the uterus, will tend to equalize the general circulation. The author would also wish to allude to the bad effects resulting from patients who are the subjects of hemorrhage, making any exertion in bed, especially if deviating from the horizontal position.

It is unnecessary to enter into the details of the case just related, further than to state that the patient suffered for some months from a train of nervous symptoms, but is now quite recovered.

One case of polypus uteri was treated by ligature; it came away the third day, and the patient is now quite well. At least a dozen cases of prolapsus uteri were relieved by the introduction of pessaries. The flat circular pessary was employed in preference to any other.

Some of the cases of prolapsus uteri were of very long standing; in no instance however was there any difficulty in the reduction of the tumor, nor any unpleasant effects resulting from the restoration of the uterus to its natural situation.

One old woman who had a large prolapsus of the uterus for forty years, on a pessary being introduced for the first time last winter, expressed herself as being more comfortable, and in better health than she had been for a number of years. The daughter of this woman, who had both prolapsus of the uterus and of the rectum, was also relieved by the flat pessary.

At the time she applied at the dispensary she had a large tumor corresponding to the situation of the right kidney. Its formation, which took place two years before, was preceded by shiverings, pain in the abdomen, &c. She appeared as if quite run down by hectic, having profuse diarrhœa, night sweats, &c. She passed in her urine, which in other respects was natural, immense quantities of purulent matter. The uterus was supported by the pessary; light nutritious diet was administered, and medicines given calculated to check the diarrhœa, merely with the expectation of alleviating symptoms;

contrary however to expectation, (the purulent matter still passing with the urine,) the tumor gradually lessened, and at length totally disappeared, and she is now in the enjoyment of perfect health.

A CASE

OF

ENCYSTED ABSCESS

IN

THE CENTRE OF THE SPINAL CORD,

By JOHN HART, M. R. I. A.,

ETC. ETC.

In the summer of 1828 I assisted Mr. Hallahan in the post mortem examination of a child, aged nine months, at which Mr. Crampton was present. The following is a brief outline of the case. The child had been for about a month suffering from irritation of the bowels, which the parents supposed to be owing to dentition, when a lateral curvature of the lumbar portion of the spine to the right side was taken notice of, accompanied with spasmodic twitching of the right leg and thigh. Soon after this occurrence, the child was affected with convulsions, which became more frequent, and were shortly accompanied with well marked symptoms of hydrocephalus, which, notwithstanding very active treatment, proved rapidly fatal. On exa-

mination of the body the following appearances were found. The head was enlarged, the sagittal and coronal sutures open, the pia mater every where red from increased vascularity; there was a considerable effusion of straw coloured serum on the surface of the brain, in the ventricles, which were distended, and in the spinal canal. In fact, there were the ordinary appearances so well known to present themselves after death from hydrocephalus.

We next examined the spinal canal, when we found a globular sac, of about the size of a hazel nut, filled with an aqueous fluid, which pressed on the nerves of the cauda equina of the right side, accounting for the spasmodic twitchings of the muscles of the limb.

Observing that the spinal cord appeared of unusual thickness, an incision was made into it, from which some *thick purulent matter* flowed out; on further examination, we found that this matter was contained in a cyst, which occupied the very centre of the spinal cord: this cyst was of an oblong form, extending from the first to the twelfth of the dorsal vertebræ, and was terminated by an obtuse extremity both above and below. The diameter of this tubular cyst was about four lines, its parieties were a line in thickness, and so solid as not to collapse when the con-

tained fluid was discharged; so completely did it occupy the centre of the spinal cord, that the medullary substance formed a tube of equal thickness on every side of it. The absence of paralysis in this case is remarkable. The plate (Plate VII.) which accompanies this paper gives a faithful representation of the appearance which a transverse section of the spinal cord and cyst presented at the time. The inner circle marks the section of the sac, and the circle external to it, that of the spinal marrow. The preparation of this morbid change of structure is preserved in the Museum at Park-street.

EXPERIMENTS

RELATIVE TO

THE CARBONIC ACID OF EXPIRED AIR,

IN HEALTH AND IN DISEASE;

By J. APJOHN, M.D., M.R.I.A.,

PROFESSOR OF CHEMISTRY TO THE ROYAL COLLEGE OF SURGEONS,

ETC. ETC.

The alterations which respiration produces in atmospherical air, and the corresponding changes effected in the blood whilst circulating through the lungs, have, from a very early period, been objects of interesting inquiry. But it was not until the discovery of carbonic acid by Black, that it was possible to obtain any very definite knowledge on either subject. The existence and properties of this remarkable substance once known, it was easy to recognize its presence in expired air, a fact, I believe, first noticed by Black himself, and which may well be reckoned amongst the most important of those which chemistry has given to physiological science. It is not necessary, as an introduction to the de-

sultory observations about to be detailed, to enter here into any summary of the history of the discovery of the chemical changes produced in air by respiration, beginning with the experiments of Lavoisier, and terminating with those of Dr. Edwards. Suffice it to say, that until the publication of the work of the last mentioned physiologist, (De l'Influence des Agens Physiques sur la Vie,) the following propositions were, upon the authority of Allen and Pepys, very generally considered as comprehending the amount of our knowledge upon the subject.

1. Air undergoes no change of volume during ordinary respiration.

2. Some of its oxygen disappears, and is replaced by precisely an equal volume of carbonic acid.

3. The carbonic acid of air once respired, constitutes from 8 to 8.5 per cent.

4. The carbonic acid cannot be raised beyond 10 per cent, however often air be respired.

According to the two first of these statements, the azote of atmospherical air undergoes no change of quantity, and the ratio between the oxygen which disappears and the carbonic acid produced, is always one of equality. Dr. Edwards however has shewn, in the most satisfactory manner, that the phenomena do not

admit of such simplification. By experiments upon birds, conducted apparently with great address, he ascertained that azote is evolved in summer and absorbed in winter: and he has further demonstrated, that though the carbonic acid formed sometimes equals the oxygen which disappears, it is in general considerably less. Similar conclusions had indeed been previously drawn by other inquirers, but they can be considered as fully established by his experiments alone; and to him exclusively belongs the merit of tracing a connexion, between the variations in the quantity of the azote of expired air, and the changes of the seasons.

Having made these few preliminary remarks, I shall now proceed to the consideration of the two last of the propositions quoted above.

From a few hasty experiments performed some years ago, I was led to doubt the statement of Allen and Pepys respecting the amount of carbonic acid in air once respired. But in consequence of the imperfection of my method of analysis, I could not repose much confidence in the results at which I then arrived. Having lately however received from my ingenious and scientific friend, Mr. Grimshaw, an instrument of his construction, well adapted to such a research, and possessing extreme sensibility, I resolved

upon a re-examination of the question, and engaged him to assist me in the performance of the necessary experiments. The nature of the apparatus, and the mode of manipulating with it, will be readily understood from the annexed diagrams. (Plate VIII.) It consists of two vessels A and B, of about the same capacity, the latter of which is a common matrass, mounted with a brass cap *z*, and the former is a balloon of glass with tubes *m* and *n*, also furnished at their extremities with caps *x* and *y*, into which screw the stopcocks *o* and *p*. The content of the vessel A down to *o* is 42 cubic inches, and of these 4.2 cubic inches, or exactly one-tenth of the whole, belong to the tube between 0 and 10. A single large division is therefore $\frac{1}{100}$th of the whole, and as each of these is subdivided into 10 equal parts, one of the smaller divisions is the $\frac{1}{1000}$th of the whole. To apply this apparatus the vessel A is filled with water, and the stopcock *o* carrying a bladder containing the expired air, is screwed on to the cap *x*. The cocks *p* and *o* are now to be opened, and the water permitted to flow out until it descends to *o*, when both stopcocks are to be shut, and the vessel A attached to the matrass B, which should previously be filled with caustic potash. The stopcock *o* being now turned, and the apparatus inverted, the alkaline solution is suffered to flow from B into A, and is occasionally well

agitated with the included gas. By this means the carbonic acid is absorbed, and the instrument being again placed erect, when the solution has returned to B, the cock *p* is to be closed, and the two vessels disconnected. Finally, by opening the stop-cock *p* under water, the amount of the absorption, that is, of the carbonic acid of the air operated upon, is obtained.

Such is a general account of the mode of using the instrument ; but there are some precautions necessary to insure accuracy. In the first place, especial care should be taken that the temperature of the included air be the same at the time of noting the absorption, and when the communication between the bladder and the vessel A is cut off. Attention to this circumstance is indispensable, as a difference of a single degree of Fahrenheit will cause an error corresponding to nearly two divisions on the scale. Before observing the absorption it is, of course, necessary to bring the fluid within and without to the same level ; and before closing the stop-cock *p*, sufficient time should be allowed for the water which trickles down, upon placing the apparatus in an erect position, to subside. Finally, an allowance should be made for the small quantity of air contained by the lower half of the stop-cock *p*, and which passes twice into A during the manipulations. It might be

supposed that a portion of the carbonic acid would be absorbed by the water while the air is passing from the bladder into A. That such absorption, however, did not take place in any appreciable degree, was proved by our obtaining the same results, whether common water was employed, or water saturated with carbonic acid. The following Table presents an epitome of our experiments upon air once respired :

Name.	August.	Morning.	Mid-day.	Evening.
A.	3	3.6	3.7	
A.	4		4.2	4.1
A.	5			4.1
A.	7			3.8
G.	7			4.3
A.	10		3.5	
P.	11		3.4	
A.	11		3.8	
A.	12		3.7	4.1
A.	13	3.2	4.0	3.9
G.	13	3.0	3.2	3.9
J.	13			2.1
G.	14	4.5	4.1	
T.	14	2.9		
S.	14			2.7
A.	14	4.0	4.2	3.8
A.	15	3.5	3.6	
Means,		3.5	3.7	3.6

The numbers in this Table, some of which are means of three or four experiments, demon-

strate, in a striking manner, the exaggeration of the estimate of Allen and Pepys. The carbonic acid of air once respired, instead of being 8.5 per cent, comes out, taking a mean of our results, but 3.6. It will also be seen, that it seldom rose above 4, or fell beneath 3 parts in the hundred.

We had proceeded thus far, when upon referring to a paper in the second volume of the Annals of Philosophy, page 330, quoted by Bostock, we found that Dr. Prout had been engaged in similar investigations, and were not a little surprised at discovering that his apparatus was almost precisely the same as ours, the chief difference being that, instead of the glass matrass B, he employed a gum-elastic bottle, and that each of the small divisions on the tube *n* corresponded with him, not to the $\frac{1}{1000}$th, but to the $\frac{1}{250}$th of the total capacity. We could not, however, but feel gratified at perceiving a very close coincidence between his results and ours. The greatest quantity of carbonic acid produced in ordinary respiration is, according to him, 4.1, and the least 3.3, making the mean 3.45. He also infers that the amount is not constant during the 24 hours, but that it varies with the hour of the day, attaining a maximum between 11 A. M. and 1 P. M., and a minimum at 8 P. M.; and he conjectures that this variation is in

some way connected with the altitude of the sun. Now this diurnal oscillation is supported by our table as far as it goes, the means for the morning and evening being both less than that for the middle of the day.

But in addition to this periodic variation, Prout has observed occasional irregularities, some of which he could not reduce to any general principle, while others admitted of being referred to mental emotion, or the use of fermented liquids, both of which he found to diminish in a very sensible degree the carbonic acid produced in respiration. We have encountered similar irregularities in our experiments. Thus, on the 14th of August, at $8\frac{1}{2}$ in the morning, Mr. Grimshaw produced 4.7 per cent. of carbonic acid ; and upon repeating the experiment immediately after, produced but 4.4, without being conscious of any thing which could account for the difference. On the next day, at $11\frac{1}{2}$ A. M., I found that the air which I expired myself, contained but 2.9 per cent. of carbonic acid, but upon repeating the experiment in 10 minutes after, it was raised to 4.2. This irregularity, however, which was so striking, I could clearly trace to a temporary mental depression. With respect to vinous drinks, I could not find that they exercised in my own case any perceptible influence. But my experiments on this point

have not been sufficiently numerous to justify me in withholding my assent from a statement made by so accurate an experimenter as Dr. Prout.

The next of the conclusions of Allen and Pepys, which the nature of our apparatus enabled us to submit to the test of experiment, was that in which it is affirmed that air once respired is almost at the extreme point of vitiation, or that little addition is made to its carbonic acid by respiring it as often as possible. That such is not the case is amply demonstrated by the following experiments:

August.	C^c. acid of air once respired.	C^c. acid of air respired as often as possible.
3	3.7	6.4
4	4.1	7.1
7	4.3	7.1
12	4.1	6.0

The quantity of air subjected in each of these experiments to repeated respiration was about 220 cubic inches, and the breathing of it was continued, upon an average, about two minutes. Had the respiration been continued in each case until the same degree of distress was experienced, there can be little doubt that the numbers in the third column would have approached

closer to equality. As it is they do not deviate very widely from it; and at all events, when compared with the corresponding numbers in the second column, they fully refute the opinion of Allen and Pepys. These philosophers allege that they have found in air once respired 8.5 per cent. of carbonic acid; we find only 3.6; and though the experiment has been tried very frequently, we never could, even by respiring the same quantity of air until threatened with asphyxia, raise the per-centage of carbonic acid beyond 8.

The very generally received opinion which we have been combating, has met with a qualified rejection from many philosophers. Thus Prout and others have found it inconsistent with their experiments, and have therefore denied its applicability to the case of natural respiration: but none, as far as we are aware, have denied the possibility of the carbonic acid reaching, under any circumstances, the amount assigned to it by Allen and Pepys; on the contrary, the estimate of these chemists is usually adopted, while at the same time its magnitude is attributed to the respiration in their experiments having been to a certain extent forced and embarrassed.

In air forcibly expired without any previous

inspiration, it is undoubtedly true that a greater proportion of carbonic acid will be found than in that discharged from the lungs during ordinary respiration; but this is not the case when the forced expiration has been preceded by a proportional inspiration. In two experiments, in which, after a natural expiration, an additional quantity of air was expelled by an effort from the chest, and received into a bladder, the proportions of carbonic acid were found 5.5 and 5.9.; but when the forced expiration was made after a forced inspiration of the same magnitude, which must have been pretty nearly the experiments of Allen and Pepys, the per-centage of carbonic acid did not exceed that of natural respiration. But independent of this, it is clear that the explanation is quite insufficient, inasmuch as it could not at all events account for the carbonic acid reaching 8.5 per cent; neither can the discrepancy between their determination and ours be referred to the rate at which the respiration was performed; for Allen and Pepys have shewn, and their results on this head are in strict conformity with our own, that *this* has no influence on the proportion of the carbonic acid.

As connected with the topic under discussion, we may allude here to a statement of Nystens, (vide Recherches Chymiques et Patho-

logiques, page 222,) which professes to be founded on observation. By frequently respiring the same quantity of air, it may as we have seen, be impregnated with carbonic acid to the extent of nearly 8 per cent. Now Nysten asserts that at the end of a certain time the maximum is obtained, and that if the respiration be protracted beyond this, the carbonic acid, instead of being decreased, will be diminished. His method was, after a forcible inspiration, to expire into a bladder, and breath the expired air for 30 seconds; and having in a similar manner introduced the same quantity of air into another bladder, to respire it as often as possible, and finally submit the contents of both bladders to analysis. We have however, in pursuing the same route, arrived at quite a different conclusion: in our first experiment the air respired for 30 seconds gave 6.6, and that breathed as often as possible (two minutes)7.1 per cent. of carbonic acid. In a second experiment, that repired for 30 seconds, gave 5.6, and that as often as possible, (one minute fifteen seconds,) 6.4 per cent. In a third experiment the air respired for 30 seconds, gave 5.6, and that breathed as often as possible, (one minute forty seconds,) 7.6 per cent. And by varying the experiment in a number of ways, we satisfied ourselves that the carbonic acid increases with the time, during which a given portion of air is respired up to a

particular period, though not in so quick a ratio, and that when the limit is attained, the fixed air amounts, as has been already stated, to about 8 parts in the 100.

In the course of the experiments which have been described, we were enabled to investigate another point of some practical importance, namely, the influence of respiration in unfitting air for combustion. It is sometimes stated generally that any mixture of oxygen, azote, and carbonic acid which sustains combustion is respirable, and vice versâ. We have, however, found that a mixture of these gases may be respired in which a taper will not burn, and infer therefore that the common test for choke damp may be relied upon, or that an atmosphere in which a candle burns, may be entered with impunity.

In our first experiment, air once respired, and which was found to contain 3.4 per cent. of carbonic acid, supported the combustion of a taper, both before being deprived of its carbonic acid and after the removal of this gas.

In a second experiment, when the carbonic acid was raised to 3.9 per cent, a taper immersed in the expired air was immediately extinguished before agitation with the caustic potash, but not after.

In a third experiment, the carbonic acid having been raised by repeated respiration to 5.2, a taper would not continue lighted in the expired air, even after the absorption of the carbonic acid.

As the carbonic acid is not merely mixed with the air taken into the lungs, but substituted for a portion of its oxygen, it is easy to see that the vitiation of an atmosphere by respiration is the result of a double cause; and the same is obviously true of combustion. If the oxygen were merely diminished, and no carbonic acid produced, the deteriorating influence of this diminution would be much less considerable, as is demonstrated by the second experiment. The third experiment proves, that when the proportion of oxygen removed reaches about five parts in the hundred, or one-fourth of the total quantity, the air is no longer adapted to the support of combustion. But by introducing known quantities of carbonic acid into atmospherical air, we have found that the minimum proportion of carbonic acid necessary to cause the mixture to extinguish a taper, was 15 per cent. Hence we are enabled to infer, that upon the power possessed by air to maintain combustion, the same effect is produced by the removal of 5 per cent. of oxygen, as by the introduction of 15 per cent. of carbonic acid.

The contradictory statements in reference to the influence of an elevated temperature upon the quantity of carbonic acid produced in respiration, and the important consequences which may be adduced from a correct determination of the question, induced us to turn our attention to it. It is well known that the celebrated Crawford inferred, from some experiments upon Guinea pigs, that the production of fixed air is invariably diminished by an increase, and augmented by a reduction of temperature; and that Lavoisier arrived about the same time at similar results. Spallanzani, however, drew the conclusion that the quantity of carbonic acid produced by an animal, was directly proportional to the temperature to which it was exposed. And lastly, Dr. Prout has found that its amount was not at all affected by variations of temperature. With respect to the two latter philosophers it may be observed, that the experiments of Spallanzani were performed on the inferior classes of animals, and at a time when eudiometrical processes were susceptible of but little precision; and that Dr. Prout does not appear to have used in his researches any very elevated heat. We were therefore, we confess, disposed to place more confidence in the results of Crawford and Lavoisier, even before undertaking the experiments, the particulars of which we shall now detail.

Having gone (Mr. Grimshaw and myself) to the extensive calico-printing establishment of Mr. Henry of Island Bridge, we first ascertained the per-centage of carbonic acid produced by each of us in ordinary respiration, the thermometer standing exactly at 60° in the shade. We then entered the padding room, the temperature of which was maintained at between 146° and 152°. In this we remained for 37 minutes, and having respired each into a separate gum-elastic bag, we immediately got out, and submitted the contents of the bags to analysis. The following are the results contrasted with each other:

	C. Acid of Air, respired at 60°.	C. Acid of Air, respired at 149°.
A.	4.3	2.7
G.	4.4	3.0

A glance at these numbers would seem to leave no doubt of the fact, that the quantity of carbonic acid produced in respiration is considerably reduced at a high temperature. This conclusion however by no means necessarily follows, unless it be shown that the quantity of air which passed through the lungs in both cases was the same. For should the velocity of the respiratory movements be increased by the augmentation of temperature, it is easy to conceive, that while the per-centage of carbonic acid diminishes, the total amount of it produced in a given time may

continue the same. With the view of obtaining data for the elucidation of this point, an accurate register was kept by each of the motions of his heart and chest, or of the number of respirations and pulsations performed in a minute of time. Before entering the padding room, these may be stated to be for each of us, 18 respirations, and 76 pulsations. After entering the heated chamber our pulses very quickly experienced an alteration. Mr. Grimshaw's, however, rose quicker than mine, and reached the maximum, which was 116 beats at the end of 21 minutes, a velocity attained by mine in 5 minutes more, and which neither of us exceeded during the remainder of the experiment. Shortly also, before leaving the heated room, Mr. Grimshaw found that he respired 22 times, and that I respired 30 times in a minute. Now, these results can scarcely be said to lend any support to the opinion maintaining the constancy of the total amount of the carbonic acid produced in a given time. That such be the case, it would be necessary that the per-centage of the carbonic acid should be always reciprocally proportional to the degree of rapidity of the respiration, or in other words, that 2.7×30 should be equal to $4.3\times18=77.4$; and that 3×22 should be equal to $4.4\times13=79.2$. In fact, to bring out such a conclusion, Mr. Grimshaw should have made, in the heated chamber, not

22 but 26 respirations in a minute, whereas, instead of 30 I should have made but 28. But even though we had got these very numbers, it may be questioned whether the inference at which we have pointed could be safely drawn, inasmuch, as it is by no means certain that the amount of a single respiration is the same whatever be the degree of velocity with which the respiratory movements are performed. If, however, we be permitted to adopt the very probable opinion, that the magnitude of a hurried is less than that of a natural respiration, our experiment will, I think, justify us in inferring that as the per-centage of carbonic acid of expired air is decidedly diminished by placing an animal in an elevated temperature, so is also the total quantity of it produced in a given time. In favour of this conclusion it would be easy to produce indirect arguments of a powerful description, drawn from considerations upon the sources of animal heat. But such a course is foreign to our present object, which is to state as briefly as possible, and without comment, the results of a few detached experiments.

Before leaving this subject we may allude to an opinion of Legallois, quoted, and apparently adopted by Dr. Edwards, which appears to us extremely erroneous. This eminent physiologist attributes, at least in part, the diminished

consumption of oxygen in a heated atmosphere, for he adopts this opinion apparently on the authority of Crawford, to the rarefaction sustained by the air, in consequence of which a given bulk of it will include a diminished proportion of the principle which determines in the blood the changes necessary to life. This however cannot be the case, for the temperature of the body experiences under such circumstances but a very slight augmentation,* and the heated air in entering the lungs is necessarily reduced to its standard.

We shall conclude these desultory remarks with the following Table, exhibiting the proportions per cent. of carbonic acid expired by patients labouring under different diseases. The experiments have been undertaken at the suggestion of our friend Dr. Graves, and it is by him, as Physician to the County Dublin Infirmary, that we have been enabled to pursue an interesting but neglected branch of pathological inquiry.

* While in the heated room a thermometer placed beneath the tongue shewed for each of us a temperature of exactly 100°.

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Upon the preceding table a few remarks will suffice. In all organic affections of the viscera of the thorax, the proportion of carbonic acid is materially reduced, and this appears especially true where the disease resides in the heart. Euke's case is remarkable for the small quantity of carbonic acid produced, although her pulse is constantly 110, and she labours under extreme hypertrophy of the heart of long standing, but unattended by cough, bronchitis, or any evident pulmonary lesion. It is also diminished in dropsy, and probably in pregnancy; but in continued fevers, and all acute affections, probably with the exception of typhus fever, its amount does not seem to suffer diminution, but is, on the contrary, sometimes increased.

From the limited data which we have acquired, it would, we are aware, be unsafe to deduce general conclusions. We purpose therefore, with Dr. Graves's assistance, still prosecuting the inquiry, and combining with the determination of the carbonic acid of expired air, that of the relative proportions of its oxygen and azote.

CASE

OF

CHRONIC CYNANCHE LARYNGEA,

IN WHICH THE OPERATION OF TRACHEOTOMY WAS ADVANTAGEOUSLY PERFORMED.

By WILLIAM HENRY PORTER,

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Cases in some respects similar to the following one have been so frequently laid before the profession, and the general results of the operation are now so well understood, that it might seem almost needless to swell the records of surgery by additional observations on the subject. But on examination, this case will be found to present some features of more than common interest which have not been hitherto remarked, and which may perhaps serve to throw some additional light on the pathology of affections of the larynx, and even of the lungs. Although I had hitherto paid very considerable attention to this class of diseases, I own I was unprepared for some of the symptoms presented by this case,

and that the recovery of the patient, even partial as it is, was wholly unexpected: and as it may inspire other practitioners with greater confidence in the resources of art, in cases almost apparently hopeless, I shall offer no apology for laying it before the profession, together with such observations as naturally suggested themselves during its progress and treatment.

On Saturday Nov. 28th, 1829, a man named Miles Brady, a labourer, aged 24, very large, and apparently of powerful strength, applied at the Meath Hospital amongst the extern patients complaining of a difficulty of breathing: he was immediately admitted, and placed under my care. He suffered from very great dyspnœa, each act of respiration being attended with a sibilous whistling sound: the expirations comparatively easy, the inspirations very laborious and accompanied with heaving of the chest; and as is usual in such cases, there were severe exacerbations, occurring principally at night, which brought him to the verge of suffocation. Patient also complained of cough, short, husky, and without expectoration; but this symptom was not *observed* to be very troublesome. Great soreness of the throat; difficulty of swallowing, and remarkable tenderness on pressing the larynx externally. It was not easy to obtain a satisfactory view of the fauces, but as far as

could be observed there was no trace of inflammation whatever. The larynx and trachea were seen to move rapidly up and down in the neck, and the larynx also appeared to advance forwards as the patient seemed to inhale the air, by an effort almost convulsive. The face was flushed and very red; the eyes prominent; the lips pale and of a purplish tinge; the forehead covered with profuse perspiration; the general expression of countenance inexpressibly anxious and distressed. Pulse above 100, small and weak.

The history of cases of cynanche laryngea is always difficult to be ascertained by reason of the patient's inability to speak. In this instance it was only learned that he had caught a cold about six weeks previously, which at first gave him no concern, but that during the last week, immediately preceding his application at the hospital, the symptoms had rapidly advanced: that during two days his distress had been almost intolerable, and finally compelled him to seek professional assistance. In other respects he had ever been considered by his family as a remarkably healthy man.

This patient was examined by the stethoscope, both on admission and on every subsequent day, with the most minute attention.

Not being perfectly conversant with the use of this instrument, I was obliged to avail myself of the assistance of others, and from their observations the following facts may be collected: 1st, that previous to the performance of tracheotomy in these cases, very little can be learned, because of the diminished supply of air furnished to the lung, and that the noise occasioned by each forced inspiration tends materially to confuse any sound that might be heard in the chest; and 2nd, that even after the operation, the rush of air through the tube always has a tendency to create a similar confusion. These circumstances must be borne in mind, in order to form a just estimate of the value of the different stethoscopic indications observed during the progress of the case.

On admission he was bled to syncope, and had a bolus containing ten grains of calomel, with orders that the medicine should be repeated three times a day. At half past 2 P. M. he was again visited, and on entering the hall of the hospital, I could distinctly hear the sound of his respiration. It is needless to repeat here the symptoms that indicate the necessity of proceeding to immediate operation; suffice it to say, that evidently he could not have endured the state of unutterable distress in which I found him for even a few hours longer, and it was al-

most questionable whether the lungs had not already suffered so much as to render our future efforts unavailing. After some little delay, in order to make the necessary preparations, the patient's bed was wheeled into the operation-room, and the operation performed as follows :—

Having placed the patient with his neck toward the light, and caused his head to be thrown backward as far as possible, I made an incision along the central line of the neck, commencing below near the sternum, and terminating above at the cricoid cartilage. Owing to the shortness and thickness of the neck, this incision was not of sufficient length to afford room for the further steps of the operation, a circumstance that added to its difficulty afterwards. The muscles in front of the trachea were then divided, and in the depth of the incision a vein was opened. The wound was now more than an inch deep, and from its bottom the blood bubbled up, largely mixed with air, and on applying my fingers to the neck immediately above the clavicles, the crackling sensation produced by emphysema was very evident. Having paused a few moments in order to command the hemorrhage, I proceeded with the operation, and laid bare the trachea at a depth of more than an inch and half from the surface, and hav-

ing in some degree fixed it by applying the nail of the forefinger of my left hand against the cricoid cartilage, I made a semilunar incision into it, through which a tube, formed of a portion of a gum-elastic catheter, was passed.

In this case the patient did not immediately experience the relief generally afforded by the operation: the irritation occasioned by the presence of the tube seemed to distress him greatly; he rolled himself about in the bed, looked wildly, and gnashed his teeth. The blood trickling into the trachea occasioned terrific paroxysms of coughing, in which his face became swollen and purple, and he appeared on the verge of suffocation. The tube was forcibly expelled seven or eight times, and this scene of distress continued nearly half an hour, after which he experienced some relief, became calm, and enjoyed a little sleep.

Nov. 29. No remarkable symptom, except that the stethoscope indicated the existence of bronchitis; pulse as before the operation; he was bled, and calomel continued.

Nov. 30. The bronchitis very intense; harassed by cough and the difficulty of expectoration; respiration impeded by the inspissated mucus, and the tube required to be removed

frequently, in order to be cleaned; mouth slightly affected by the mercury; he was bled again, and smaller doses of calomel, combined with antimonial powder, ordered.

Dec. 1. Not much improved; his countenance was flushed and anxious; his breathing not better; great pain in swallowing, and a sensation of uneasiness in the throat; emphysema rather increased on the neck and upper part of the chest; bronchitis still intense; cough continued harassing, and in the efforts to expectorate he ground his teeth, and exhibited great distortion of countenance. He was bled again; the blood was both buffed and cupped; medicine continued.

Dec. 2. A small valvular slip of the trachea, which annoyed the patient, has been removed, and the operation gave relief. He lay calm and tranquil, and with the exception of the assistance necessary to be afforded in all such cases, in catching the mucus as it is expectorated, and preventing its being again sucked into the wound, he gave but little trouble. Expression of countenance improved; emphysema rather more extended.

Dec. 3. Patient's mouth very much affected with mercury, and he made signs that he could

swallow without difficulty; pulse 84 and soft; emphysema as extensive as ever. According to the evidence of the stethoscope the bronchitis had disappeared. He was bled again; calomel with opium ordered.

Dec. 4. Mercurial fœtor observed from the mouth, and the gums appeared sore, *without any abatement of the original laryngeal distress.* On closing the wound for a moment, the patient experienced great uneasiness, and could neither speak nor breathe; slight bronchitis; emphysema diminished; none observed below the clavicles. He was bled, and the blood observed to be deeply buffed; medicines to be continued.

Dec. 13. It is needless to multiply daily reports, each resembling the other, and consequently likely to prove tedious. During the last week there was little alteration, except that he suffered from occasional paroxysms of dyspnœa. It would appear that the wound is closing, and the patient cannot always bear the presence of of the tube; he frequently relieved himself by introducing a forceps into the wound, and dilating it, by divaricating the blades of the instrument, but still it is worth remarking that these paroxysms often occurred at times when there was least obstruction in the wound: the smell from his breath was abominably fetid, exactly

such as is remarked in phthisis laryngea; the emphysema had disappeared, and there was no bronchitis; the mercury had been laid aside since the 9th.

On this day I endeavoured to introduce a common catheter through the wound into the larynx, in hopes of rupturing the abscess, which I felt convinced existed in that organ. From the great depth of the wound this manœuvre could not be accomplished, and I remarked that the beak of the instrument, on being withdrawn, was deeply stained by sulphuretted hydrogen; pulse 84, soft; complexion healthy and florid; salivation continued.

Dec. 15. A new symptom of very alarming character was observed this day. On attempting to drink, apparently every drop of liquid escaped through the wound, indicating that a communication had been established between the pharynx and larynx; the discharge from the wound continued to be odiously offensive, and was rather increased in quantity: several symptoms of hectic fever were observed, such as nocturnal perspiration, flushing of the face, emaciation, and increased frequency of pulse.

Dec. 20. With a view to relieve the occasional attacks of dyspnœa, a silver canula of

large size was this day introduced, and seemed to be, in some respects serviceable, but the distress must have depended on some other cause besides mechanical obstruction, for the paroxysms still occurred occasionally. On the authority of the stethoscope the lungs appeared free from disease; the hectic symptoms increased; he never slept without having his head, breast, and shoulders bathed in sweat; great emaciation and debility in proportion; pulse generally above 110, never below 96; he, however, had observed that his drinks did not *entirely* pass through the wound, and he had succeeded in swallowing solids during the two previous days.

Dec. 22. On this day a most remarkable symptom made its appearance, the pulse had fallen to 48 strokes in the minute, but in other respects was neither feeble or irregular. On the preceding day, (Dec. 21,) he had expelled through the wound, in a fit of coughing, one of the arytenoid cartilages in a state of earthy degeneration, very much resembling carious bone. Whether this substance, which was triangular in shape, and sharp, could by its presence have kept the parts in a constant state of irritation, it is hard to determine. I have seen many instances of similar substances being discharged by cough, but the cases seemed uninfluenced by the circumstance, and went on without inter-

ruption to their fatal terminations. But here, almost immediately after its expulsion, the pulse fell to a most extraordinary degree ; the capability of swallowing increased ; the putrid odour became less offensive ; appetite improved, and with it came some return of strength ; a larger tube, the diameter of which is $\frac{3}{8}$ of an inch, was introduced with a view to its remaining permanently.

Dec. 28. Patient appeared wonderfully improved both in appearance and strength, although his pulse varied between 42 and 48 ; a very small portion of his drink passed by the wound, but the fœtor had diminished, and there was no purulent expectoration ; appetite very good.

Jan. 13. It was scarcely deemed necessary to make any report of the patient's case during the past fortnight, except that he has been gradually improving. On this day his condition is as follows :—

His strength is wonderfully recruited, but he has not recovered from the emaciation ; there is a circumscribed red spot on each cheek like that in hectic fever ; pulse 44. On closing the tube, he can speak in a hoarse rough tone, but he cannot respire through the natural passage.

The communication between the larynx and pharynx has closed; not a drop of liquid passes through the wound. Appetite very good; sleep composed; respiration through the tube uninterrupted; no cough; no complaint of pain or uneasiness in any part: left the hospital.

It may be observed that this case presented many phenomena of a peculiar and interesting nature. I pass by the circumstance of the early occurrence of emphysema, because, although formerly it might have created no inconsiderable alarm, yet now its pathology is so well understood, that its existence, even had it been perceived before the operation, would not have delayed its performance for a moment; however, it is scarcely to be credited how largely it added to the embarrassments of an operation sufficiently difficult in itself, but on this occasion rendered more so, by the shortness of the patient's neck, his amazing muscularity, and the consequent depth of the narrow wound, together with a degree of restlessness and struggling for breath, such as I had seldom witnessed.

This was a case such as I have elsewhere described as constituting phthisis laryngea, and when the symptoms indicating its nature became developed, I own I could not have entertained expectations even of the partial benefit

derived from the operation. Certainly I was aware that men had survived for months, and even for years, breathing artificially through the aperture in the trachea; but in no instance had I ascertained that the sloughing of the arytenoïd cartilages, and the establishment of a communication between the larynx and pharynx, could be followed by recovery, however imperfect. I had already operated on five similar cases, and had succeeded in prolonging life for different periods, but never longer than thirty days. I had witnessed several of the same description, and even during the progress of this case, I had an opportunity of seeing one in which the operation had been performed, but the patient only survived until the sixteenth day. Under these circumstances the result of this case was equally unexpected and gratifying, and has very considerably increased my confidence in the operation, seeing a possibility of success in a disease which was looked upon by others, as well as by myself, as irremediably hopeless.

That there was disorganization of the laryngeal cartilages to a greater or lesser extent, is proved by the expectoration of that earthy substance above alluded to: that an abscess existed, probably in the usual situation, at the upper and posterior part of the cricoïd cartilage is equally clear, from the quantity of purulent expectora-

tion, and the abominably fetid odour exhaled from the wound: and that this abscess in bursting had formed a communication between the pharynx and larynx is established by the fact of the escape of fluids through the aperture in the neck whenever he attempted to swallow. On considering the circumstances, it seems difficult to conceive how an abscess thus situated could possibly heal, and so satisfied was I of an unfavourable result, that I did not introduce a tube into the œsophagus for the purpose of conveying nutriment; a practice which I had often adopted before, and which I thought had proved rather injurious than serviceable. Whether thus leaving the parts free from unnecessary irritation, might have favoured the healing process, it is not easy to determine, or whether the emaciation that took place in the course of four or five days, and which I have constantly observed even where the œsophagus tube was used, could be attributed to its omission here, is perhaps equally uncertain: but as this was the only circumstance in which the treatment of this case differed from others not equally fortunate, I have considered it worth remarking.

The only remaining symptom deserving particular notice was the curious depression in the rapidity of the circulation that occurred about Dec. 22nd. It was one, the cause of which I

cannot pretend to explain; suffice it to say, that the respiration was proportionably slow, and that it continued until the day of his removal from the hospital.

NOTE.—This man was at hospital on the 31st May, still breathing through the tube, and unable to exist without it. He had spent the interval since his discharge from hospital in the country, and his general health seemed improved, but as far as could be judged from appearances, he will never be able to dispense with the artificial respiration.

ON

THE EFFECTS PRODUCED BY POSTURE,

ON THE

FREQUENCY AND CHARACTER

OF

THE PULSE,

IN HEALTH AND IN DISEASE;

By ROBERT J. GRAVES, M. D.,

ETC., ETC.

The posture of the body has a very considerable influence on the frequency of the pulse, even in healthy persons, and this influence being still more marked in disease, it has been long a matter of common observation, that the pulse is more frequent in the erect than in the horizontal posture. This subject, not having been investigated with the accuracy it merits, I have made it the object of numerous experiments, the results of which appear in some respects novel, and not devoid of practical utility. In healthy persons the pulse in the erect posture is more frequent than in the horizontal, by from six to

fifteen beats in the minute. If the pulse is but sixty the difference is generally not more than six or eight, and this difference increases with the frequency of the pulse at the time of the experiment: thus if it has been raised to 90 or 100 by moderate exercise, it is not unusual to find the difference twenty or thirty.

As the muscular exertion necessary to keep the body in the erect posture, might be considered as the cause of this greater frequency, it became necessary to contrive means of placing the body in any desired posture, without the necessity of muscular exertion on the part of the subject of the experiment; this was effected, and it was found that when the posture was changed by means of such a contrivance, the difference between the frequency in the horizontal and the erect postures, was not less than when muscular exertion was used.

I now anticipated, that if the body was placed with the head down and the feet up, a still further retardation of the pulse would be produced; it was, indeed, natural to conclude from the preceding experiments, that posture alone was the cause of the retardation observed in the body when placed horizontally, and consequently, that this effect would be augmented on still more depressing the head, and that the

maximum of retardation would occur in the inverted position.

I was inclined still more to this opinion from considering, that in the inverted position, the return of blood from the brain, being opposed by the force of gravity, that organ would necessarily become the seat of sanguineous congestion, to a degree capable of producing cerebral compression and consequent retardation of the pulse; for I cannot subscribe to the opinion of Dr. Abercrombie and others who maintain, that the quantity of blood circulating within the cranium never varies in quantity;* here, however, as it not unfrequently happens, preconceived ideas were not found to accord with experiment, and no further retardation of the pulse was thus affected, neither, on the other hand, was it accelerated beyond the number observed in the horizontal position. This fact I verified by experiments made in the presence of Dr. Jacob, Dr. Apjohn, and Mr. Harris. It appears

* Pressure on the brain when *long continued* and *considerable*, retards the pulse, but when applied under other circumstances, it has no such effect. This subject, however, I shall reserve for a future occasion, when I shall mention the results of experiments made to determine how far, and under what circumstances the pulse is affected by cerebral compression, and from which it will appear that the commonly received opinions on this subject require modification.

very singular, that a posture so unnatural as the inverted, should produce no effect on the frequency of the pulse, as compared with the horizontal, while a change from the latter to the erect, both natural postures, is attended with so great an acceleration. In the inverted posture, although the frequency of the pulse is not altered, its strength is diminished, and often very considerably; it is not unusual too, for it to become irregular, a fact that may be explained by the greater weight of the blood pressing back on the aortic valves, and thus, necessarily opposing an unusual impediment to its egress from the left ventricle. The pulse is also evidently stronger in the horizontal than in the erect posture, consequently its *maximum of strength, and minimum of frequency*, are attained together. This may, I conceive, account more satisfactorily than has been hitherto done, for the relief obtained, by placing patients in the horizontal posture, in order to avoid syncope, as, for instance, that produced by venesection. In all other diseases* in which I have investigated this

* Owing to the kindness of Mr. Sohan, I had an opportunity of examining the pulse of a lady, aged 50, of strong constitution, in whom since her childhood, the frequency of the pulse has never exeeeded 38 in a minute. It is the same in all postures, *and its frequency is not altered by the accession of febrile or inflammatory affections.* There is no suspicion of any disease of the *heart.*

subject, I have found a difference between the frequency of the pulse in the erect, sitting, and horizontal postures; *but in six cases of hypertrophy with dilatation of the heart, no such difference was perceptible, although all these patients, at the time of my making the experiment, were in a debilitated state*, which, it will just now appear is that in which the changes induced by position are the most remarkable. In four of these cases the existence of hypertrophy with dilatation has been ascertained by post mortem examination, and of the other two, a man, and a woman, at present in the Meath Hospital, there can be no doubt of the state of the heart in one of them, while in the other, the existence of hypertrophy is more than probable. For the sake of accuracy I shall give the precise results of the experiments I made before the class on these six patients; where two numbers follow each other, they denote successive quarters of a minute, that being first which immediately followed the change of posture.

Doyle, *Monday,*	Pulse in	Horizontal	Position, 72
	———	Sitting, ...	72
	———	Standing, ...	80
Tuesday,	———	Horizontal, ...	72
	———	Sitting, ...	80, 72
	———	Standing, ...	80, 72
Wednesday,	———	Horizontal, ...	72
	———	Sitting, ...	72
	———	Standing, ...	72

Malone,	Pulse in Horizontal position,	60
	——— Sitting, ...	76, 60
	——— Standing, ...	76, 60

In both of these cases, although the pulse during the first quarter of a minute after the change of posture, rose in frequency, yet in the next it fell to the previous standard; indeed it may be remarked that the greatest frequency, *where muscular exertion has been used* to assume the sitting or erect posture, is observable in the first ten seconds which follow that exertion, both in health, and still more remarkably in disease; and consequently the first quarter, or even half of a minute, should be rejected where we wish to ascertain the permanent alteration thus produced.

In two other cases, *Gorman* and *Reilly*, in whom the hypertrophy and dilatation had attained to a great size, even this acceleration during the first few seconds was scarcely preceptible, and the pulse almost at once resumed its former standard. The same observation applies to the two patients at present (5th July,) in the hospital; in the man the pulse is 76, both when he is lying or sitting; in the woman, in whom certainly extreme hypertrophy with dilatation exists, the pulse is constantly above 100, and the same in both postures. They have been both long ill, and are much debilitated by

the effects of the disease, and of the remedies employed to mitigate its violence.

In these cases of diseased heart I have already remarked, the hypertrophy and dilatation were very great, and in five of them certainly, and in the sixth probably, the left ventricle was involved in the disease; and I am inclined to think, that this permanence of the pulse in all positions of the body, will be only found to exist in such cases, and not in those where the hypertrophy and dilatation are less considerable, and consequently the diagnosis more obscure. This circumstance may, it is true, detract from the value of the observation *so far as regards diagnosis*, but certainly does not diminish its physiological interest: I may observe, too, that should future observations prove that hypertrophy of the heart is not always attended by this permanency of the pulse, and I believe it is not, yet its occurrence in so many cases of that affection is nevertheless an interesting fact. In pursuing this inquiry it will be necessary to compare the effects of posture in hypertrophy with, and without disease of the valves of the heart and aorta. It would be premature to inquire into the cause of this phenomenon, but it immediately suggests itself to the mind, that it depends on the increased strength and energy of the left ventricle when in a state of hypertrophy,

and which, in a great measure, place its contractions, as it were, beyond the influence of these causes which, in other diseases, attended with debility, and even in many persons in health, enable a change of posture to produce so remarkable an alteration in the frequency of the pulse. I shall now give the results of a great number of observations, made both in hospital and in private practice, upon this effect of change of posture on the frequency of pulse in other diseases.

1st. That the greatest difference occurs in patients labouring under fever, or in a debilitated state in consequence of fever or any other cause. It may amount to 30, 40, or even 50, between the horizontal and erect postures.

2dly. That this difference decreases after the first quarter of an hour in most cases, but always remains considerable, as long as the same position is observed.

3dly. That in persons not much debilitated the difference is much less than that stated above, and often does not amount to more than 10.

4thly. That when the patient lies down, the pulse rapidly falls to its former standard.

5thly. That in some the increase in frequency is greater between the horizontal and sitting posture, than between the latter and the erect; while in others the contrary takes place, so that

generally the frequency in the sitting posture may be taken as a *mean*.

6thly. In persons convalescent from fever or acute diseases, I find it is extremely useful to the physician to ascertain the comparative frequency of the pulse in the horizontal and in the erect position. The greater the difference, the greater is the debility of the patient, *and consequently the more guarded must his medical attendant be in allowing him to sit up for any length of time*, particularly if the pulse on his lying down does not resume its usual degree of frequency.

Authors who have written concerning the effects of digitalis on the organs of circulation, speak of the difference between the pulse, as observed in different positions, as an inexplicable anomaly, and seem quite ignorant that a similar phenomenon occurs in a less degree in health, and in an equal degree in many diseases. The fact appears to be, that *digitalis*, besides a great and debilitating influence on the whole constitution, and particularly the nervous system, possesses a *peculiar* power of diminishing the frequency of the pulse; *but it is no anomaly* that, in persons under its influence, debilitated, and nervous as they always are, when it is exhibited in doses sufficient to retard the pulse, there should be a great difference between the

frequency of the pulse as examined in the horizontal, the sitting, and the erect postures.

I need scarcely add, that I cannot advance even a plausible conjecture, concerning the reason why a change of position should so affect the frequency of the pulse. It is singular enough, however, that Humboldt should have observed something similar in the hearts of frogs, cut out of the body, the great vessels being tied. In one of these experiments the heart being placed on a piece of glass horizontally, after 12 minutes its pulsations had sunk to 12 in a minute. It was now suspended perpendicularly, and after 2 minutes the number of pulsations rose to 20.* *Baer*, in his work, Uber entwickelungs geschichte der Thiere, &c., has made the curious observation, that in hatching eggs artificially, the chick in ovo soon dies if the egg be so placed as to rest on either end. This circumstance, which he does not attempt to explain, suggests an obvious and beautiful explanation of the reason why eggs are not round but oval, as the latter shape effectually prevents them from assuming a position in the nest which would be fatal to the enclosed fœtus. Some ova, as for instance those of certain reptiles, are round; but I know of no bird whose eggs are not more or less oval.

* *Annals of Medicine*, vol. iv. 239.

It would be interesting to investigate the cause of this phenomenon, as also to examine into the reasons of the remarkable difference which exists between the effects of position on the human fœtus in utero, and on the human adult. In the former the inverted or semi-inverted position of the body is the natural position; in the latter it is insupportable for any length of time.

NOTE.—*Dr. Thomson,* in his work on inflammation, *in the sixteenth chapter,* notices the effects of the posture of the body on the pulse, and seems to have experimented extensively on the subject. He remarks that there is a considerable difference between the frequency of the pulse in the erect and horizontal position, even in health, and that this effect is still more remarkable in disease. He has not said any thing however concerning the state of the pulse in the inverted position of the body, nor has he anticipated several of the other topics discussed in the preceding Paper.

REPORT

OF THE

COOMBE LYING-IN-HOSPITAL,

By RICHARD REED GREGORY,

MEMBER OF THE ROYAL COLLEGE OF SURGEONS IN IRELAND.
MASTER OF THE HOSPITAL.

In bringing the Report of this Hospital before the public, it seems proper, in the first instance, to state briefly the circumstances which led to its establishment, and the good that has been thereby effected.

It was found, from the experience of medical gentlemen residing in the Liberty and its vicinity, that the highly valuable Institution for the reception of lying-in women on the northern side of this city, was on many occasions unavailable in the hour of need to the destitute poor of this populous district, owing to its great distance: in proof of which it is only necessary to state, that several instances have occurred during the past year, of women being delivered in the street, on the steps, and in the hall of this Hospital.

To mitigate the miseries, and meet the wants which but too generally exist on occasions of this kind, in this impoverished district, subscriptions were solicited, and obtained to the amount of £216 13s. 4d., and with this sum and other resources, this Hospital was opened on the 3rd of February, 1829. It contains four spacious and well ventilated wards, in which are thirty-six beds; and it is proposed very shortly to open another ward, by which the number of beds will be increased to forty-two. One ward is fitted up exclusively for the accommodation of patients, who being in better circumstances, would not choose to be supported at the expense of the Institution. The Hospital affords most comfortable accommodation for six intern pupils. An extensive dispensary is attached to the Institution, where the pupils, both intern and extern, have full opportunity of becoming acquainted with the diseases of women and children, and their treatment. Midwifery patients are attended at their homes by the pupils, and supplied with whatever medicine their cases may require. Since its establishment 691 patients have been delivered in the Hospital, and 196 were attended at their own homes, making a total of 887 relieved by the charity.* Of the intern patients nine died.

* I regret I cannot give a detailed account of the extern patients, in consequence of the registry of their cases having

The following table exhibits the varieties of the of the labours.

Natural presentations, -	645
Face, - - - -	2
Breech, - - -	14
Feet, - - - -	7
Arm, - - - -	3
Shoulder, - - -	1
Funis, - - - -	7
Twin cases, - -	12
Placenta, - - -	0
Total,	691

In two of the twin cases the breech presented, in two others, the head; in one the first child presented with the head, the second with the feet; in another the first child with the breech, the second with the arm; the other six were presentations of the head and breech.

The following table exhibits the number of births, and the sex of the children, arranged according to the age of the mother, from fifteen to forty-five inclusive, taking an average of every five years.

been irregularly kept in the commencement; amongst them, however, there were many cases of extreme interest, notes of which I have, and shall publish on a future occasion.

From	Males.	Females.	Total of Births.	Still born.		Total Still Born.
				Males.	Females.	
15 to 20	19	15	34	2	2	4
20 to 25	114	93	207	14	6	20
25 to 30	100	88	188	9	7	16
30 to 35	106	79	185	10	2	12
35 to 40	33	23	56	1	1	2
40 to 45	15	17	32	0	1	1
45 to 50	0	1	1	0	0	0
	387	316	703	36	19	55

Of the still born children there were 29 premature, 2 abortions, 3 arm presentations, 3 natural cases, 3 crotchet cases, 4 cases of prolapse of the funis, 3 feet presentations, and four breech ditto: of the 12 cases of twins four children were still born, making a total of 55 deaths. Premature labour is a circumstance of very frequent occurrence among the women residing in this district of the city, owing to their irregularity of living, and the brutal treatment they often receive from their husbands.

Of the arm cases, one did not come into hospital until twenty-four hours after the waters had drained off, and the child had been forced into the pelvis by the violent action of the uterus,

which continued after her admission, so as to render turning impracticable. Spontaneous evolution (as it is termed by Dr. Denman) took place in this case in nine hours after her admission. The patient recovered without a bad symptom.

Another was admitted in the eighth month of pregnancy; she was seized with labour the day before, and the waters had been discharged for four hours previous to her admission. No difficulty however was experienced in turning, and the woman recovered rapidly.

Mary Lynam was delivered, about 9 o'clock in the morning, of a healthy male child of the usual size, under the superintendance of a pupil; shortly afterwards a second set of membranes were discovered protruding into the vagina. On my visiting the Hospital about half-past three, (not having sooner received the message that was sent me,) I found the arm of the second child protruding beyond the external parts, and the child wedged in the pelvis, the uterus being in a state of powerful action; in the hope of abating which, and subduing considerable fever, under which the patient laboured, venesection was performed, an enema administered, and opium given, but without effect; turning was quite impracticable. Having re-

quested the assistance of Drs. Breen and Montgomery, the patient was seen again, immediately upon the arrival of these gentlemen. The uterus having continued its action with unabated violence, the body of the child had been forced considerably lower into the pelvis. Both arms were now entirely beyond the external parts, and the shoulders protruding between the labia, the cavity of the pelvis being completely filled by the upper part of the trunk. Under these circumstances we were of opinion, that the means most likely to accomplish the delivery speedily, would be the separation of the head from the body; but as there was evidently an inclination to descent, owing to the action of the uterus, which still continued powerful, it was judged advisable to assist the descent, by which means the operation, if ultimately required, would be rendered more easy. With this intention a hook was introduced, and fixed in the thorax, when upon making use of some tractile force (which was powerfully assisted by the action of the uterus,) the child was rapidly delivered, the nates and legs sweeping along the back of the pelvis and over the edge of the perineum, the mechanism of the delivery being the same as that which occurs in the spontaneous evolution. The child was nearly, if not fully, as large as single children usually are.

The woman recovered without a single unfavourable symptom.

Of the crotchet cases.—The operation in in one instance was had recourse to in consequence of deformed pelvis, and the length of time she had been in labour previous to her admission, besides which there was unequivocal evidence of the child's death. The operation was performed with ease, and the child extracted with perfect safety to the mother, but very unfavourable symptoms soon shewed themselves, and ultimately sloughing of the neck of the uterus and adjoining parts took place, which caused her death fourteen days after delivery.

Another was a soldier's wife who had been in labour four days previous to her being sent into hospital, during which time she said she had not passed water: the bladder was greatly distended. The operation of embryotomy was had recourse to immediately after her admission; the head being so impacted in the pelvis as to prevent the use of the forceps. When the child was extracting, it was found to be very much enlarged from putrefaction: she lived for nearly three weeks, having laboured under a continued hoarseness, and nearly loss of voice. These symptoms existed at the time of her admission.

On examination after death there was ulceration of the chordæ vocales, and evident inflammation of the mucous membrane of the bronchial tubes. The uterus had two small abscesses in its substances. The third was operated on in consequence of the length of time, eighteen hours, the head had been in the cavity of the pelvis, without the slightest advance, though the labour pains continued violent, and after the forceps had been tried. This woman speedily recovered.

Of the funis presentations.—Two cases occurred in women who had come a considerable distance on foot, from the country, to be confined; a large portion of the cord was down, and pulsation had ceased previous to admission.

In the third case of funis presentation, the discharge of the waters, and the falling down of the funis, were the first symptoms which attracted the patient's notice, the former having fallen considerably below the external parts without any previous pain. These circumstances induced her to come immediately into hospital. On examination the cord was found as above described, pulsating strongly; but the os uteri was very little dilated. During the attempts to restore the cord the pulsation ceased; the patient had a favourable labour afterwards, and did well.

Of the footling cases, one was an acephalous fœtus, and the cord presented along with the foot. Of the breech presentations, three were cases of premature labour.

The following is a brief account of the remaining seven cases of death which occurred :—

Mary Nowlan died of rheumatic fever, a fortnight after delivery.

Mary Cullen died of hemorrhage, occurring immediately after the expulsion of the child. Her death was almost instantaneous.

Margaret Butler died in consequence of inflammation of the uterus and some of the adjacent parts. On dissection, several small abscesses were found in the substance of the uterus ; a large collection of pus existed over the right iliac and psoas muscles under the fascia, extending along the side of the pelvis, and connected with the right side of the uterus. The left side of the pelvis was healthy, as well as the peritoneum and bladder. Such extensive disease was not expected to exist in these parts, as the patient could all throughout her illness bear firm pressure without experiencing pain. But I cannot be very certain of the exact state of

this patient's symptoms or sensations, as she was attacked with mania soon after delivery.

Judith Riley was extremely delicate on coming into hospital. Inflammation and sloughing of the upper and inner part of the uterus took place, which was not suspected during her life time; after death, on cutting into the diseased part, (which was not much greater in extent than the size of a crown-piece,) it had much the characters of anthrax.

Mary M'Dermot died of consumption three days after delivery, which she had been labouring under for a long period previous to her admission.

Mary Maguire was admitted on the night of the 24th of July, 1830, and was delivered in two hours after. She was so ill from chest disease, apparently phthisis, that it was thought she could not survive the delivery. She died three hours afterwards; no examination was allowed.

Judith Foy was labouring under bronchitis on her admission, which rapidly increased after her delivery; she sunk in two days.

In one instance premature labour was induced, in consequence of contracted pelvis, in a

woman named Mary Fox, of diminutive stature. About fourteen hours after the evacuation of the liquor amnii, she had a severe rigor, which lasted for an hour. In twelve hours after, slight labour pains occurred, these continued for about nine hours, when she was delivered. The child was born alive, but died in an hour.

CASES

OF

FOREIGN BODIES IN THE TRACHEA,

By RAWDON M'NAMARA, M. R. I. A.,

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Samuel Lovett, aged 4, an exceedingly well formed, healthy looking child, was brought to the Meath Hospital on Saturday the 13th of of October, 1827, in consequence of his father supposing that he had swallowed a plumb-stone on the Thursday before. The child's countenance was somewhat flushed, his pulse a little excited, so that to a common observer he would appear to be suffering from a slight attack of catarrhal fever. The account which I obtained from his father, a sergeant in the Artillery, was, that at three o'clock on Thursday he had been speaking to him whilst eating a damson tart, that the boy had been talking upon a subject that interested him a good deal, with his head

raised, and his breath hurried, when he was instantly seized with a fit of suffocation attended by violent coughing and expectoration of "red, frothy blood," upon which the father took him to Doctor Duré the regimental surgeon, but before he arrived at the doctor's quarters the child recovered his breath and considerably mended; the bloody discharge ceased after a little, as did the cough, when he played about as usual, and seemed perfectly well, with the exception of his being attacked at intervals of an hour, or an hour and a half, with fits of coughing, and of his being very hoarse. Being persuaded that a foreign body had entered the trachea, I determined to watch the child attentively, and I soon found that though his manner was lively and playful, his father's account was correct, inasmuch as he was seized at intervals with fits of suffocative cough, so peculiar, that if once observed, I do not think they could be mistaken; during a paroxysm his countenance became purple, his cheeks were forced out, his chest was raised, and his neck swollen, in consequence of his efforts at expiration; in short he was in the condition of a person who could fill the lungs with air without having the power of expelling it, and therefore the cough, in this case, differed from any spasmodic cough I had before witnessed, for he had the power of filling the thorax to the utmost, but the difficulty he expe-

rienced was in expiration ; nor was this difficulty the result of the contraction of the muscles of the larynx, for, whenever a paroxysm was severe, I could distinctly perceive that there was a mechanical obstruction to the exit of the air, produced by the ascent of the foreign body to the larynx, causing a perfectly audible sound, which resembled more that produced by striking the tongue forcibly against the anterior part of the hard palate, when the mouth is closed ; in addition to this I may remark, that in no instance was the subsidence of the paroxysm marked by that deep and sonorous inspiration so characteristic of hooping cough, or of spasmodic cough. I am the more anxious to note the symptoms resulting from the presence of a foreign body in the trachea, seeing that Doctor Latham remarks that the "distinction of the cause will be lost in the magnitude of the irritation, so that whether there be inflammation of the membrane, or ulceration of the cartilages, or abscess in the cellular substance, or accidental lodgment of an extraneous body, the symptoms will probably be the same."—See *Medico Chirurgical Transactions*, vol. VI. p. 261.

Having carefully considered the above symptoms, I felt myself warranted in proposing the operation of tracheotomy to the father ; but he resolutely refused his consent, and removed the

child from the hospital, not, however, without promising to return the next day if some powders (calomel and hippo,) which I prescribed, did not afford him relief. He accordingly returned at 11 o'clock the next morning, having been alarmed by the restless night that the child had passed, and by the occurrence of some severe paroxysms of cough, in which he thought he would be suffocated; his pulse was now 130, his skin hot, his manner peevish and anxious, his fits of coughing were more frequent than yesterday, but perfectly similar in character, and still unattended by expectoration; his respiration was hurried, particularly after each paroxysm, in the intervals it was short, as though the lungs were not perfectly filled at each inspiration. The following were the stethoscopic phenomena observable in the case on this day: on the left side respiration more puerile than natural, mixed with some sonorous rale superiorly; on the right there was a nullity of respiration, whilst the thorax on both sides sounded perfectly clear on percussion. I kept the stethoscope applied to the right side of the thorax for about two minutes, when the boy made a sudden and violent effort at expiration, upon which the respiratory murmur, which before was inaudible, returned with an intensity equal to that of the left; and when he became tranquil we could distinctly perceive the valve-like

sound similar to that before described as occurring when the stone was pressed against the rima glottidis; in addition to this, a peculiar "ronflement" was heard on applying the stethoscope to the trachea, caused by the foreign body being moved upwards and downwards by the currents of air in that tube. Combining the above symptoms with the stethoscopic phenomena, I felt myself warranted in urging an instant operation. I was, however, overruled in this by some eminent practitioners, who still expressed doubts as to the nature of the case; and it was agreed in consultation to defer it for three hours, during which time the patient should be carefully watched; in this interval the symptoms rapidly advanced, his countenance became more flushed, his paroxysms of cough more frequent, his manner more anxious and agitated, in short it was obvious that to defer the operation any longer would be wholly unjustifiable. On his being brought to the table he was seized with a violent fit of coughing, during which every person present could distinctly hear the foreign body stopping the glottis like a valve. The operation was performed in the usual manner. The fascia covering the trachea was extensively divided, some venous hemorrhage occurred in this stage of the operation, requiring pressure with a little lint to restrain; when it stopped three rings of the trachea were divided by turn-

ing the edge of the knife from below upwards; upon this there was a diminution, but not a total loss of voice, a fit of coughing instantly occurred, during which a large-plumb stone was forcibly expelled through the wound to the height of two or three feet. The child was now put to bed, the wound was left open, and a small dossil of lint was placed at its inferior angle to restrain any hemorrhage which might arise; this however was unnecessary, as it stopped on the respiration becoming natural.

Eight o'clock, P. M.—Very hot and restless; pulse 148; respiration 68; thirst urgent; he has had one stool, and but little sleep since the operation. On applying the stethoscope to the chest, the sonorous rale was audible at every part, accompanied by some crepitus in the right lung. The treatment consisted in the application of 14 leeches to the chest, 3 grains of calomel, and a table spoon full of a solution of tartarized antimony in the proportion of 1 grain to 8 oz. of water every third hour.

Monday, 9 o'clock, A. M.—Had some sleep, skin warm; pulse 130; respiration hurried; bowels moved 4 times in the night; he was ordered to lose five ounces of blood from the arm, and continue the antimonial solution, increasing its strength by one grain; the bleeding softened his pulse, and produced a tendency to syncope.

Eight o'clock, P. M.—Skin hot; respiration hurried; pulse 140; very restless; complains much of pain of the head; has had one slimy green stool. The stethoscope does not indicate sufficient pulmonary inflammation to account for the febrile symptoms at present existing, so that it would seem they were the result of irritative fever. Twelve leeches were now applied to the thorax; he took a bolus of calomel containing three grains, and he was ordered half a grain of calomel and a like quantity of hippo every third hour, in addition to his antimonial solution.

Tuesday, 7 o'clock, P. M.—Has had some cough, and a mucous discharge from the wound; slept however very well; had some diaphoresis; skin cooler; pulse 130, soft; respiration not much hurried, carried on through the nose and mouth, very little air passing through the wound, the lips of which were now drawn together by adhesive plaster, without causing any obstruction to respiration; his bowels not having been moved, he was ordered the following draught:

℞ Pulv. Scammonii,
Bitart. Potassæ,
Utriusq. gr. quatuor.
Tinct. Sennæ Comp. ʒii.
Sacchari albi. scrupula duo.
Aquæ fontanæ, ℥ss.
M. fiat haustus statim sumendus.

Nine o'clock, A. M.—Bowels moved twice, slept well, breathing free, but a little hurried, is carried on through the glottis, countenance much improved; the calomel and hippo was omitted, his other medicine was continued; from this day he progressed gradually, and in ten days from that of his admission he was dismissed cured.

Dennis Toole, an intelligent boy, of a robust habit, was brought to the Meath Hospital on Saturday the 5th of September, 1829, in consequence of his having swallowed, on the Wednesday before, a plumb-stone, which he had been whistling through, having made a hole in either side of it, and removed the kernel in order to make it resemble a bird call. The boy suffered but little inconvenience, except at intervals, when he was a good deal distressed by fits of suffocative cough; he was able to run about and to occupy himself as boys of his age usually do; he did not complain of pain on deglutition; he said that the cough caused pain in his throat, but only during severe paroxysms, and that he had a dull pain at the ensiform cartilage; his countenance was bloated; his pulse 106; his skin cool; his fits of coughing, which were becoming evidently more frequent, had not a croupy character, but resembled rather those of emphysema of the lung or suffocative

catarrh, and were followed by white frothy mucous expectoration. The chest sounded clear when percussed; respiration was natural, excepting a slight sonorous rale in the upper part of the left lung; the pharynx exhibited traces of increased vascularity. The boy was able to make a whistling noise, audible at a considerable distance, whenever desired to do so; this he effected by forcibly expelling the air through the stone, but he never could make it during inspiration. From a review of this case I felt persuaded that the stone was most probably fixed in the upper part of the trachea, where it might have rested with an extremity in either ventricle of the larynx: at all events it appeared clear, that during the efforts of the boy to whistle through it, the apertures of the stone must have corresponded with the rima glottidis; I therefore determined upon performing the operation of laryngotomy, in the expectation that I should be able to remove the foreign body, either from the wound, or that I could force it back through the rima by means of an instrument passed for the purpose. I accordingly performed the operation in the usual way, making an incision into the larynx and trachea of about one inch in length, the centre of which was the crico-thyroideal space, a sufficient time having elapsed, and the stone not making its appearance at the wound, I passed a full sized

flexible catheter through the trachea, in order to dislodge it and press it into the pharynx; this to all appearance was effected, for the boy could no longer whistle through it, a power he possessed very audibly on being placed on the table, and which he was now incapable of accomplishing, though the wound in the trachea was closed for the purpose, and to this the suffocative cough entirely disappeared, and he strenuously asserted that he swallowed the stone; the bleeding having ceased he was put to bed. On visiting him shortly afterwards, I found him perfectly tranquil, completely relieved from his cough, his pulse 90, and his respiration natural; the only anxiety he seemed to experience arose from the loss of his voice, which he was apprehensive would never be returned. Nothing remarkable occurred in this case for eight days; the day after the operation some aperient medicine was administered, and though the stools were narrowly watched the stone was not found. Saturday, the 13th September, upon examining the chest with the stethoscope, I was astonished to find a nullity of respiration on the right side, whilst the respiratory murmur on the left was more audible than natural, at the same time that the right sounded clear on percussion; from these circumstances I had no hesitation in declaring that the stone was lodged in the right bronchus, a situation which happily it did not

occupy long, for in a few minutes, on applying the instrument to the trachea, I could perceive that peculiar "ronflement," before described, which is so indicative of a foreign body moving in that tube; in addition to this he was now able to whistle, though faintly, through the stone, and it was curious to observe how the whistling noise and the nullity of respiration alternated; for whenever the stone was impacted in the right bronchus he was incapable of making the noise, and when he was able to whistle through the stone the respiratory murmur of the right lung was natural. I now determined to dilate the wound downwards; and on Saturday, the 16th of September, I passed a probe-pointed bistoury into the trachea, dilating the wound to the extent of about half an inch, when the stone was forced out in a fit of coughing. He was now put to bed, the sides of the wound were gently approximated by adhesive straps, and he was ordered two grains of calomel at bed hour; this procured three evacuations from his bowels, and was the only medicine he required, inasmuch as he was dismissed the hospital perfectly well in six days from the removal of the stone, without having had a single symptom worth recording during that time.

When called to a case similar to the above, the diagnosis is the part which most claims

the surgeon's attention; it behoves us therefore to avail ourselves of every means calculated to throw light upon this, which, it must be confessed, is sometimes a very difficult case. In forming our opinion the following circumstances must be taken into consideration:

1st. The history of the case; size of the body suspected to have entered the trachea; previous state of health of the patient, as to thoracic or spasmodic disease; whether he had been exposed previously to the contagion of hooping cough or other catarrhal disease. 2dly. The actual state of the patient, in order to distinguish the effects of the accident from laryngitis, spasmodic croup, or hooping-cough. We are not likely to confound the symptoms caused by a foreign body in the trachea with laryngitis, if we regard the intermissions to the difficulty of breathing which attend the former; these, though they do occur in the latter disease, are never complete, more or less sibilous breathing always remaining. The absence of fever in the earlier stages of the accident, and the difficulty of respiration, which is chiefly observable during expiration, will also tend to establish the diagnosis. We can easily distinguish it from spasmodic croup, by observing that the difficulty of breathing which attends that disease occurs during inspiration, and not in expiration. Between

it and hooping-cough we can also distinguish easily, by taking into account the previous catarrh and previous exposure to contagion, which are features in the latter disease. The peculiar character of the hoop, which bears no resemblance to the suffocative cough caused by the foreign body, and the difficulty of respiration occurring, as in the former cases, during inspiration. In addition to these we have the stethoscopic phenomena, which in my opinion are quite conclusive, viz., 1st. the sound of the stone moving in the trachea, which was not constant, seeing that it was occasionally impacted in the right bronchus. 2ndly. The sonoro-mucous rale audible occasionally in the upper portion of the trachea. 3rdly. Absence of respiratory murmur in one lung, its return after a fit of coughing, and its re-appearance without any apparent cause, this absence coinciding with natural clearness of sound on percussion.

It may appear strange how a foreign body of the shape of a plum-stone could produce complete absence of respiration in one lung; but this can be accounted for easily by supposing a spasmodic closing of the bronchus, a circumstance which can readily be conceived when we consider the muscularity of the tube. We can also explain why the right bronchus should be

so frequently the receptacle of foreign bodies, very few indeed of those recorded being situated in the left, by a reference to its size, direction, &c.

From the above cases we are fully warranted in concluding that foreign bodies, such as those mentioned, when received into the trachea, remain for some time free, and in a situation capable of being acted upon by the currents of air in that tube, a fact the experiments of M. Favier, related in the fourteenth volume of the Memoires de l'Académie Royale de Chirurgie, prepare us to expect. The operation then, as far as the foreign body is concerned, is easily performed, nothing but a free incision being required to insure its removal. It is also more easily performed in this case than in those attended by embarrassment of breathing, for in such cases the trachea is violently moved upwards and downwards, so that its unsteadiness renders it difficult to perforate; and should the fascia covering of it not be extensively divided, a thing too often neglected, the free ingress of air is impeded, rendering it necessary to enlarge the wound, which is by no means an easy step of the operation; add to this the engorgement of the veins of the neck, in consequence of the obstruction to the pulmonary circulation, which, by giving rise to venous hemorrhage, impedes the operation, and which, by the way, is best

restrained by opening the trachea, thus removing the cause; if the above circumstances be considered, it will, I say, be evident that bronchotomy is a much more easy operation in this case than in any of those for the relief of which it is recommended.

As to the advantages of an early operation it is unnecessary for me to insist upon them; they must be evident to every person who reflects that the principal risk the patient has to encounter arises from inflammation, and its consequences, and hence that we should not allow ourselves to be deceived by the very little inconvenience which the patient suffers after the entrance of the foreign body into the trachea, and thus become the advocates of delay; for it should never be forgotten, that those symptoms, which such persons regard as necessary to justify an operation, are all the product of inflammation, which, once set up, it is impossible for us to say where it will stop, and the effects of which, as is proved by the cases recorded by M. Louis in the Memoires of the Academie Royale, the removal of the foreign body will not be able to remedy. That numerous cases have occurred in which foreign bodies have been coughed up, after a lapse of several years, cannot be questioned; but so far from such making against an early operation, the result of most of them is

much in its favour; indeed a reference to the case of Lovett goes far to establish this position, for there inflammation had arisen to a considerable height before the operation was performed, and hence the difference in the after treatment from that of Toole; nor does the delay which occurred in the extraction of the stone, in the latter case, furnish an argument against an early operation, for it should be recollected that here the stone remained perfectly quiet, seeing that the boy breathed through the wound, and it did not change the place which it occupied between the wound and the larynx, until the air began again to pass by the natural channel.

NOTE.—The following account of a foreign body in the trachea, lately observed by Dr. Plant, may form not an uninteresting addition to the cases detailed by Mr. M'Namara.

Black Rock, Aug. 14, 1830.

MY DEAR SIR,

I send you the particulars of the case, and the piece of wood, of which I spoke to you at Mr. L.'s; the boy was a fine healthy little fellow, aged 11 years, free from cough; he was chewing some wood, a piece of which, of an irregular form, about the size of a six-pence, and a line in thickness, got into the trachea. He coughed violently for three days, and particularly at night; he complained of pain low down in the right lung. I examined him with as much accuracy as I could; I could not detect, in any way, any foreign body in the trachea; the impression on mymind was, that it got down into the bronchus, from his complaining of pain in that

part. I saw him constantly for four weeks, during which time he was perfectly free from constitutional disturbance, with the exception of a troublesome cough: at the end of the fourth week he had a most violent fit of coughing, after which he said the pain was removed from his side, and that he felt something in his throat. On examining him I could detect a foreign body moving up and down the trachea. As the boy's cough was very much relieved, and there was no apparent danger of his life, I determined to let him alone for some days, and see whether the foreign body would be coughed up, as the impression upon my mind was, that as he coughed it up from the bronchus, where it certainly was, the probability was, that he would cough it up from the trachea: at the end of the fifth week he did so, making in all thirty-five days from the time he swallowed the piece of wood until he coughed it up. I send you the piece of wood.

I am, dear Sir,

Yours very truly,

W. PLANT.

To R. J. Graves, M. D.

OBSERVATIONS

ON A

PECULIAR CONVULSIVE DISEASE

AFFECTING YOUNG CHILDREN;

WHICH MAY BE TERMED

"SPASM OF THE GLOTTIS,"

By H. MARSH, M.D. M.R.I.A.,

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Doctor John Clarke, in his Commentaries on the Diseases of Children, has described a spasmodic affection which he terms "a peculiar species of convulsion in infant children." This disease appears to consist primarily in spasm, occurring suddenly, and affecting the muscles of the glottis; as it increases in severity, other muscles, particularly those of the fingers and toes, become progressively engaged; and ultimately, if neglected or mistreated, leads to severe and universal convulsions. This

affection, though alluded to and described by several, is yet not generally known or recognized; and the principles of treatment, not always correct, have obtained but little notice or attention. To supply this deficiency, and to bring this disease more under general notice, are the objects proposed in this communication.

This infantile affection I at first considered to be of rare occurrence and of little danger; further observation has proved that instances of it are by no means few, and that it often times terminates fatally: I cannot, however, but think that it is to early mismanagement or neglect, that its dangerous or fatal tendency may, in several instances, be traced.

From my notes I have selected a few cases: in these, the leading facts only, are stated; they, however, are sufficient to elucidate the characteristic features of the disease, and the principles of the treatment. It will be well to look at the disease, first, when it exhibits its mildest and least complicated characters; afterwards to see its severer aspects, and its more frequent complications: indeed, in the study of spasmodic affections, it is important to learn, first, their essential characters, afterwards the functional derangements or diseases with which they are observed most frequently to co-

exist; thus, for instance, in the treatment of Chorea, if complicated with derangement of the digestive organs, the purgative treatment recommended by Dr. Hamilton will often be effectual; but, if there be no such complication, as observation often proves to be the fact, this mode of treatment becomes worse than useless; it really adds to the disease which it is intended to relieve, and augments the convulsive movements of the muscles; hence it happens that many cases of Chorea which have resisted empirical courses of purgative medicines, have yielded speedily to local applications over the origin of the nerves which supply the muscles affected, combined with a decidedly tonic treatment. The spasmodic affection, now under consideration, requires to be studied in the same manner. It stands sometimes alone, no discoverable source of irritation, no other perceptible disease co-existing with it: more frequently, however, it is complicated with painful dentition, with derangement of the digestive functions, with a cachectic state of the system induced by an impure atmosphere, with fever, and occasionally with effusion into the ventricles of the brain; the consideration of these various complications bears most importantly upon the treatment. The case I shall first narrate exhibits the disease in its mild and simple form.

A child, eleven months old, remarkably healthy,

and in appearance well thriven, had been for some time affected in the following manner: it had been observed, now and again, to awake suddenly from sleep in a state of alarm and agitation, to struggle for breath, and, after repeated efforts, to recover from the paroxysm, with a long and sonorous inspiration; the convulsive effort was described to be severe, and the face to become swollen and purplish: these attacks occurred, at first, only on awaking from sleep, afterwards more frequently; sometimes without any perceptible cause, at other times, and more frequently, when she was vexed or was about to cry. On examining the child accurately, I could discover no deviation from a state of perfect health; the pulse and respiration were natural, skin cool and soft, tongue clean, the breath pure, the appetite good, the bowels regular; the alvine excretions exhibited the appearances usual in healthy children on the breast. She was playful and lively, but was startled unusually by any sudden noise; the four incisor teeth had appeared; the gums were neither swollen nor tender.

The treatment consisted in half grain doses of sulphate of quinine every sixth hour, and free exposure to the open air; the attacks became less frequent, and after some days ceased altogether. She has since (during a period of two years) remained in very good health.

Two other cases have fallen under my observation, in which the disease was confined to an occasional spasmodic affection of the glottis; no other perceptible derangement of function co-existing with this, nor any apparent irritation from dentition; in these, as in that already stated, the disease subsided under the influence of a mildly tonic treatment.

A patient whom I had been attending, happened to mention to me incidentally, that her child, about fourteen months old, was in the habit of awaking suddenly from sleep as if alarmed, breathed with difficulty, and made a loud noise like that in a fit of the hooping-cough; she said also, that this occurred occasionally during the day, when the child was cross; she spoke of this lightly, as of an unimportant thing. I requested to see the child; it looked pale and unhealthy; the integuments were soft and flabby; the tongue coated; the bowels relaxed or confined; the stools green and curdy; the child was irritable and nervous, and seemed to suffer from dentition; the extremities were slightly swollen, and the thumbs placed firmly across the palms of the hands. I stated that I thought the child very ill, and that probably convulsions would take place.

Next day I was summoned in haste, and found the child just recovered from a severe paroxysm of general convulsions.

The gums over the projecting teeth were divided; leeches were applied to the temples, cold lotions to the head, and warm fomentations to the extremities; aperient medicines were given; the nurse, whose milk obviously disagreed with the child, was changed; and it was removed from the city to a healthy situation in the country: after one other attack of convulsions, recovery was speedy and complete.

In this case the disease was complicated with derangement of the digestive functions, and also with painful dentition; the convulsive paroxysms, at first partial, increased in severity, and at length became general. The remedies which appeared to be ultimately and permanently efficacious, were, change of air and change of nurse.

A fine child, twelve months old, remarkably large for its age, had been subject, for four months, to frequent attacks of what the parents called croupy breathing; those attacks, they said, occurred at first only at night and rarely, afterwards occasionally during the day; for some time the child appeared so well that those attacks were disregarded; at length, having increased in frequency and severity, medical advice was obtained; the treatment, which consisted in bleeding, emetics, mercurial purgatives, confine-

ment to a heated apartment, and warm flannels next the skin, was founded on the supposition that pulmonary inflammation existed.

When I first saw the child, the struggle in breathing was difficult and protracted, and the face, during the paroxysm, became quite livid: these attacks, which usually terminated with a loud and sonorous inspiration, were excited by very slight causes, such as sudden noises, the removal of the child from the nurse's arms, or any source of irritation or annoyance; and now, instead of going off as formerly, they were, once or twice in the twenty-four hours, terminated by severe and general convulsions, which had all the characters and appearance of an epileptic paroxysm: after one of those, strabismus remained;* there was also a swollen and puffy state of the extremities, with a spastic rigidity of the fingers and toes; the digestive functions were greatly deranged, and the child looked exceedingly ill: it had been weaned for nearly three weeks; a healthy wet nurse was procured; the gums, rather as a measure of precaution than from necessity, were divided; the temperature of the apartment was lowered, and gradual habituation to the open air adopted; the quantity of clothing with which the child

* On the recovery of the child, this symptom gradually disappeared.

was oppressed, was by degrees diminished, and after a little time, the body was sponged daily with vinegar and water: the child had already been so frequently and copiously bled, that further bleeding was not deemed advisable. Its health improved rapidly, and, restricted in nutriment to the nurse's milk, the bowels soon returned to their natural state; the general convulsions ceased altogether, and the attacks of spasmodic dyspnœa became daily less frequent and severe. As a proof of the completeness of recovery, it may be mentioned, that a few weeks having elapsed, this child was extensively scalded, and yet no convulsive or spasmodic symptom ensued. The child, moderately covered, almost lived in the open air, and, during the whole process of dentition, a succession of fresh wet nurses was provided. He is now, after the lapse of some years, a fine and healthy boy. In this case, the change of nurse, and the substitution of the tonic for the heating regimen, were attended with results at once speedy and satisfactory.

A weakly and delicate child, two years of age, had been subject, for some time past, to occasional and sudden attacks of dyspnœa, during which the inspirations were observed to be short and frequent; the head was drawn back; the sense of suffocation appeared urgent: these attacks, which were protracted and severe,

ended in a loud whoop or crow; between these, there was sometimes an interval of several days, and, during this period, the child appeared in tolerable health, but irritable and easily alarmed. After some time the paroxysms occurred more frequently, and began to excite, in the minds of the parents, considerable apprehension: the disease had been treated as a catarrhal affection. On my first visit the child was confined to bed, and laboured under well marked symptoms of remitting fever; the pulse and respiration were accelerated, skin hot, tongue coated and florid at the edges, the papillæ red and prominent, thirst, and the desire of cold drink urgent, the fæces thin and fetid; there was continual picking at the nose, and the diurnal exacerbations of fever were well marked; the veins of the head appeared unusually turgid; there were frequent attacks of spasmodic dyspnœa, such as have already been described; there was spastic contraction of the flexor muscles of the fingers and toes; the extremities were swollen, and of a slightly livid colour: this child suffered greatly from dentition, the teeth were unusually large, and were protruded at a very late period: on dividing the projecting and vascular gum of one of the molar teeth, some purulent matter was discharged. This child had had congenital cataracts, at the age of three months both eyes had been operated on; severe ophthalmia ensued:

he had been copiously bled, and calomel had been given very largely; the child scarcely survived the treatment, and remained afterwards very feeble, emaciated, and delicate. A few leeches were now directed to be applied to the temples, calomel in minute doses was given every third or fourth hour, and occasional doses of Castor oil: the febrile symptoms gradually subsided, the patient recovered slowly, and for some weeks remained without any return of the spasmodic attacks. After some time the child again began to suffer from difficult and painful dentition, and the spasmodic paroxysms recurred with violence: whilst in the act of dividing the gum, the spasmodic attack came on suddenly, and so urgently, that the face became livid, and there was complete opisthotonos; this spasm lasted so long, that respiration was for a time suspended, and for a few seconds, I felt apprehensive lest the child should have died in the struggle. At length, after a long and sonorous inspiration, the spasm subsided, leaving the child in a weak and exhausted state. These formidable attacks recurred frequently, and were followed soon by general convulsions; it was now determined in consultation, that the child should be bled from the arm. The blood was allowed to flow until a perceptible effect was produced upon the system: for ten days afterwards there was not any return of

convulsions or spasms: at the end of this time the paroxysms of dyspnœa, terminating sometimes in general convulsions, became again frequent. There now existed extreme emaciation, languor, complete anorexia ; fingers and toes rigid ; extremities purple and œdematous ; nervousness ; tremor; and starting at the slightest noises : under these circumstances an injection, consisting of five grains of tobacco-leaves in six ounces of water, was administered: the specific effects of tobacco, in a marked degree ensued, and it was remarkable, that for a month afterwards no convulsive symptoms reappeared. About this period, a slighter recurrence of these symptoms led to the removal of the child from the city to the country, upon which they ceased immediately, and the child improved rapidly in health and strength: recovery appeared now so complete that the child was brought back to a large, and newly painted house in the city; when after a few hours the spasmodic attacks recurred with violence : on a second removal to the country, they ceased at once ; a similar experiment was a second time tried, and with precisely similar results ; and it is a curious fact, that two other children were attacked with a similar spasmodic affection in this same newly painted house ; of these, one died in a convulsion, the other, on being sent to the country, recovered: the child, whose case has just been related, had been for

years free from any spasmodic affection, but remains delicate, and suffering severely from scrofulous disease.

This case exhibits the disease complicated with remitting fever, and with painful dentition; it also proves that the disease may exist to a most alarming extent, and yet recovery take place: the powerful effects of tobacco, in allaying spasmodic action, are also remarkably displayed. The importance of change of air as a remedy of prime efficacy in this affection, is strikingly exhibited. Nor is it undeserving of notice, that spasmodic disease seemed in two instances to be caused, and in this reproduced, by the contaminated air of a newly painted house.

A child, nine months old, was brought to the Institution for the diseases of Children, labouring under the spasmodic disease already described: this child had cut the four incisor teeth; not having been at the time aware of this disease, I merely prescribed some medicine with the view of improving the digestive functions; there was no indication to lead to the conclusion that the child suffered from dentition: some days afterwards, being sent for to see this patient, I found it violently and generally convulsed; the convulsive paroxysms succeeded

each other at short intervals of time, and in about twenty-four hours proved fatal.

The body having been examined twenty-six hours after death, no morbid appearance was discoverable either in the abdominal or thoracic viscera; the mucous membrane of the larynx, trachea, and bronchi, exhibited a perfectly natural appearance; a very large quantity of fluid was found to have been accumulated in the ventricles of the brain; no morbid change had taken place in the brain; this was the only instance in which the disease under my observation, had terminated in hydrocephalus.

The following case was communicated to me by Dr. Johnson, Professor of Midwifery to the Royal College of Surgeons in Ireland.

I was consulted, some time ago, about the child of the Hon. Mrs. P., and received the following history of the case:

He was attacked on the third day after birth, with laryngeal spasm and a crowing inspiration, in such a degree as to excite great apprehension in the minds of the parents: these attacks returned at intervals, when the child was irritated, and on awaking from sleep, until the third month, when they disappeared with-

out any apparent cause. Between the fifth and sixth months they returned, accompanied by the swelling of the hands and feet, and the rigidity of the thumbs and toes described by Dr. Kellie, (in the Edinburgh Medical Journal,) and terminated in general convulsions: at this period he cut two incisors in the lower jaw; the attack of crowing inspiration returned frequently during dentition, sometimes alone, at other times accompanied by the rigidity of the thumbs and toes, but never terminating in convulsions, until he was cutting the first molar teeth. At the time that I was called to see him, the rigidity of the toes was so great as to prevent him from walking, and the screaming such as to render the parents apprehensive of the return of convulsions. On examination of the gums, I found the canine teeth making their appearance; the gums were divided, an issue inserted in the back of the neck, and aperient medicines were given. The attacks, however, were neither diminished in frequency nor violence, until the child was removed to the country, since which time he has had no return of the disease. He was a remarkably large and strong child for his age, which left the impression on my mind that he was over fed; however, on inquiry I found this was not the case.

This case is interesting, inasmuch as it proves that this disease is not necessarily connected

with the process of dentition,* although unquestionably exasperated in its symptoms, when the teeth are cut with pain or irritation; this case too, as the others, evinces the great value of change of air in the treatment.

I am indebted for the following interesting case to Mr. Newton, Licentiate of the College of Surgeons in Ireland, upon whose soundness and accuracy of observation the fullest reliance may be placed.

A child, aged nineteen months, of a violent temper, had always been very healthy until it was about seventeen months old, when he had a mild attack of hooping cough, since which he was observed to have occasional fits of difficulty of breathing on awaking from sleep, during which his face became livid; these lasted for some time and were terminated by a long, deep-drawn inspiration, with a crowing noise; this did not excite any alarm in his friends.

On the morning of the day on which he died, he took a hearty breakfast of stirabout, and in about an hour afterwards, he vomited; he was in

* Doctor Johnson has mentioned to me a case of this disease, the symptoms of which did not appear until after the teeth had been all cut.

good spirits and apparent good health until 5 P. M., when he was put into a passion ; his breathing suddenly became difficult, his face livid, and he expired in about five minutes.

DISSECTION,

Seventeen hours after Death.

Extremities stiff, body fat, some lividity about scrotum and posterior parts of the body.

On removing the skull cap, a large quantity of dark coloured fluid blood escaped ; there was great turgescence of the vessels of the membranes of the brain. The brain was healthy; on removing it, a considerable quantity of blood escaped from the spinal canal.

Mouth and throat.—Uvula, somewhat elongated, tonsils slightly enlarged. The rima glottidis was very much contracted. In the larynx, upper portion of the trachea, and in the œsophagus, numerous small portions of undigested oatmeal were observed : the mucous membrane of the air tubes presented every where a natural appearance. The lungs and right side of the heart were engorged with dark coloured blood. The mucous membrane of the stomach, about the pylorus, was softened and eroded. The muciparous glands of the small intestines were

enlarged. No other disease was observed in any part of the body. On examining the larynx on the following day, the rima glottidis was found to have recovered its natural dimensions.

It is clear in this case, that the spasmodic closure of the rima glottidis was the immediate cause of death; no morbid change, sufficient to account for death, having taken place in any of the viscera: the turgid state of the vessels of the brain and lungs, as well as the gorged state of the heart, were evidently the effects of the suffocative struggle, and resulted altogether from the manner in which death took place. The symptoms at the commencement are thus proved to be purely spasmodic, and it is only when the disease increases in severity, and when general convulsions arise, that the brain, or its membranes, becomes the seat of disease. It would be interesting, on any future occasion, to examine accurately the state of the pneumogastric nerve. The seat of the disease may perhaps be found to exist at the *origin* of this nerve, and topical applications, made as nearly as possible to its origin, may be found to constitute an important part of the treatment.*

* Dr. Monro, in his work on the Morbid Anatomy of the Brain, describes a variety of acute hydrocephalus ushered in with spasmodic symptoms affecting the muscles of the glottis, and in one case, describing the morbid appearances, he says, "all the nerves, at their origin, were sound, except the fifth

It seems to me not unimportant to remark, that all the cases of this disease, which I have witnessed, have occurred in children either themselves exhibiting marks of the strumous diathesis, or sprung from scrofulous parents. This bears practically upon the subject, inasmuch as it enhances the value, in treatment, of pure air, healthy nutriment, and tonic remedies.

If we take a survey of the several cases of this disease, which have been stated, we learn that it varies much in degree, and that its complications are numerous. In its mildest and least complicated form, the spasmodic action is confined to the muscles of the glottis, and the treatment consists in improving the general health, and in giving tone to the nervous system. The symptoms in such cases will rarely fail to yield to some of the vegetable or mineral tonics, pure and bracing air, and a well regulated diet: in some cases, I have perceived, I think, advantage to arise from some of the antispasmodic medicines, and amongst

" and eighth pairs, which were also of a deep scarlet colour and " covered with turgid vessels. On removing the brain, by cut- " ting through the medulla oblongata, a considerable quantity " of serum rushed from the upper part of the spinal canal.

" The vessels of the spinal marrow were turgid, those at " the cervical portion, of a vermillion red colour, and those of " the lumbar portion of a dark red hue. The eighth pair of " nerves was of deep uniform red along its whole tract, as far " as its branches going to the lungs."

these, none has appeared to me more beneficial than the old fashioned medicine, the Tinctura Fuliginis; but when the disease is complicated with painful dentition, derangement of the bowels, or any febrile movement in the system, the primary object of the treatment must be, to remove these accompanying ailments; until this be effected the treatment applicable to the spasmodic affection, though it may mitigate its severity, will fail to eradicate the disease. When the spasmodic symptoms extend themselves, and implicate the muscles of the extremities, the disease assumes a more formidable aspect, and soon, if not checked in its progress, paroxysms of general convulsions will establish themselves: in this stage the membranes of the brain become so frequently engaged, that the utmost vigilance on the part of the practitioner is required to prevent the occurrence of such mischief; yet it must not be lost sight of that the disease, even in its mildest form, is attended with danger: one case is recorded of sudden death during the spasmodic closure of the glottis; this occurred in a child who was otherwise in perfect health, and I have heard of several instances of the same kind. In every stage of the disease, therefore, we should be aware of and guard against the liability to sudden death; all needless sources of irritation should be avoided, and the child closely watch-

ed, and carefully held and supported during the paroxysm of dyspnœa. In irritable and passionate children the danger is increased. Dr. Johnson has stated to me, that he has seen a child, in a state of asphyxia caused by this disease, recovered from apparent death by the instantaneous application of artificial respiration.

Dr. Cheyne, in his Treatise on Hydrocephalus,* gives a very just delineation of this affection; he describes it as consisting in a crowing inspiration with purple complexion, *not followed by cough;* he mentions the rigidity of the muscles, the thumbs clenched in the hands, the peculiar livid and swollen appearance of the extremities, and the occurrence of universal convulsions; he states that seven instances, to his own knowledge, have ended in death; and in regard to treatment, he has dwelt with peculiar emphasis upon the importance of change of air and change of diet, as the means of greatest efficacy in effecting a permanent removal of the disease.

Dr. George Kellie of Leith has published a short Paper,† entitled, "Notes on the Swelling of the Tops of the Hands and Feet, and on a Spasmodic Affection of the Thumbs and Toes which

* Second Edition, page 16.

† Edinburgh Medical and Surgical Journal, October. 1816.

very commonly attends it." This condition of the extremities he has described very accurately, and the reader will do well to peruse his Paper with attention; it must however be remarked, that this symptom belongs to a more advanced stage of the disease, and does not exist until either the general health be considerably impaired, or the spasmodic symptoms have increased in frequency and severity; it is therefore not essential to the disease.

Mr. Porter, in his valuable Observations on the Surgical Pathology of the Larynx and Trachea, alludes to this disease, and particularly mentions the fact, that it occasionally happens that the child, during the convulsion, dies before assistance can be procured.

In the London Medical and Physical Journal, vol. xlv. p. 9, this disease is spoken of by W. Pretty, esq., under the name of Cerebral Croup, a denomination which is objectionable, because it is more than doubtful, whether in this affection, at its commencement, the brain be at all involved; and secondly, because in its symptoms and progress it is altogether distinct from croup. He describes with accuracy the symptoms in three of his own children; of these, one died, the others recovered: in speaking of the treatment of one of

those cases he concludes with the following words:—"The spasms frequently recurring, his nurse was changed, and he was sent to the country; he is now a fine healthy little fellow." He justly dwells upon the importance of attending to the state of the head during the entire progress of the disease, and also upon the necessity of dividing the gums whenever the process of dentition may appear to be a source of irritation.

In the fifth volume of Richter's Specielle Therapie, there is a tolerably accurate account of this spasmodic affection.

The facts which have been recorded, and the references which have been made, prove that this disease is of more frequent occurrence than has generally been supposed.

A controversy has been maintained for a long time, as to the existence or non-existence of spasmodic croup; a disease which I believe to be nothing else than the first stage of inflammatory croup, or else a slight and transient attack of croup in nervous and irritable children. The disease which forms the subject of this Paper is essentially different from every form and variety of croup; it is a purely spasmodic affection, and in all its stages is characterized by convulsive

movements, partial or universal, and in its earlier stages all its symptoms will be aggravated if it be confounded, in treatment, with any inflammatory affection of the larynx or air tubes. This mistake has been often made; it therefore seems to me important to distinguish this disease from other affections with which it has been often confounded, and to set forth the principles of treatment which are directly founded on this diagnosis: I may also mention, as an additional reason for dwelling on the characteristic features of this affection, that I do not find it described in any systematic work in the English or French languages.

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THE END.

ERRATUM.

Page 249, line 5, *for* for sometimes dead, *read* for some time dead.

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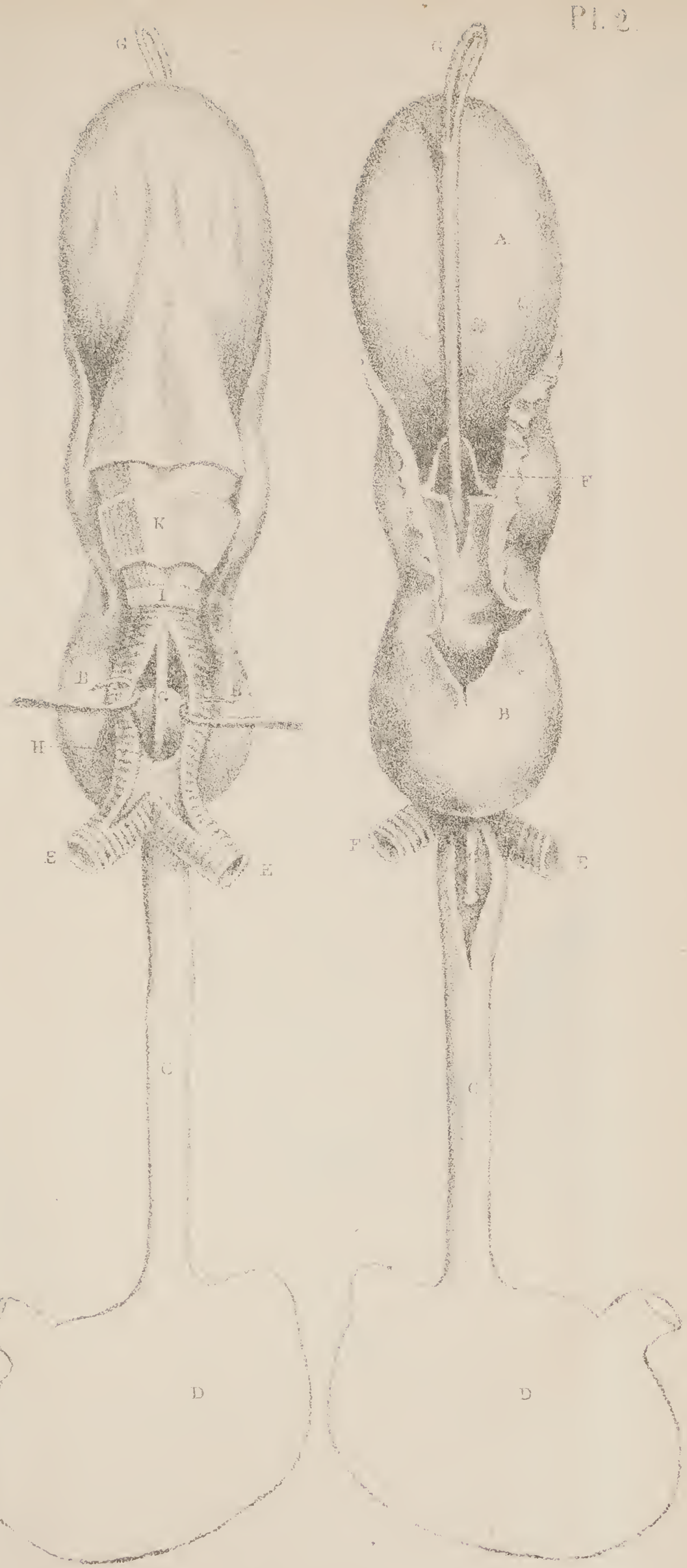

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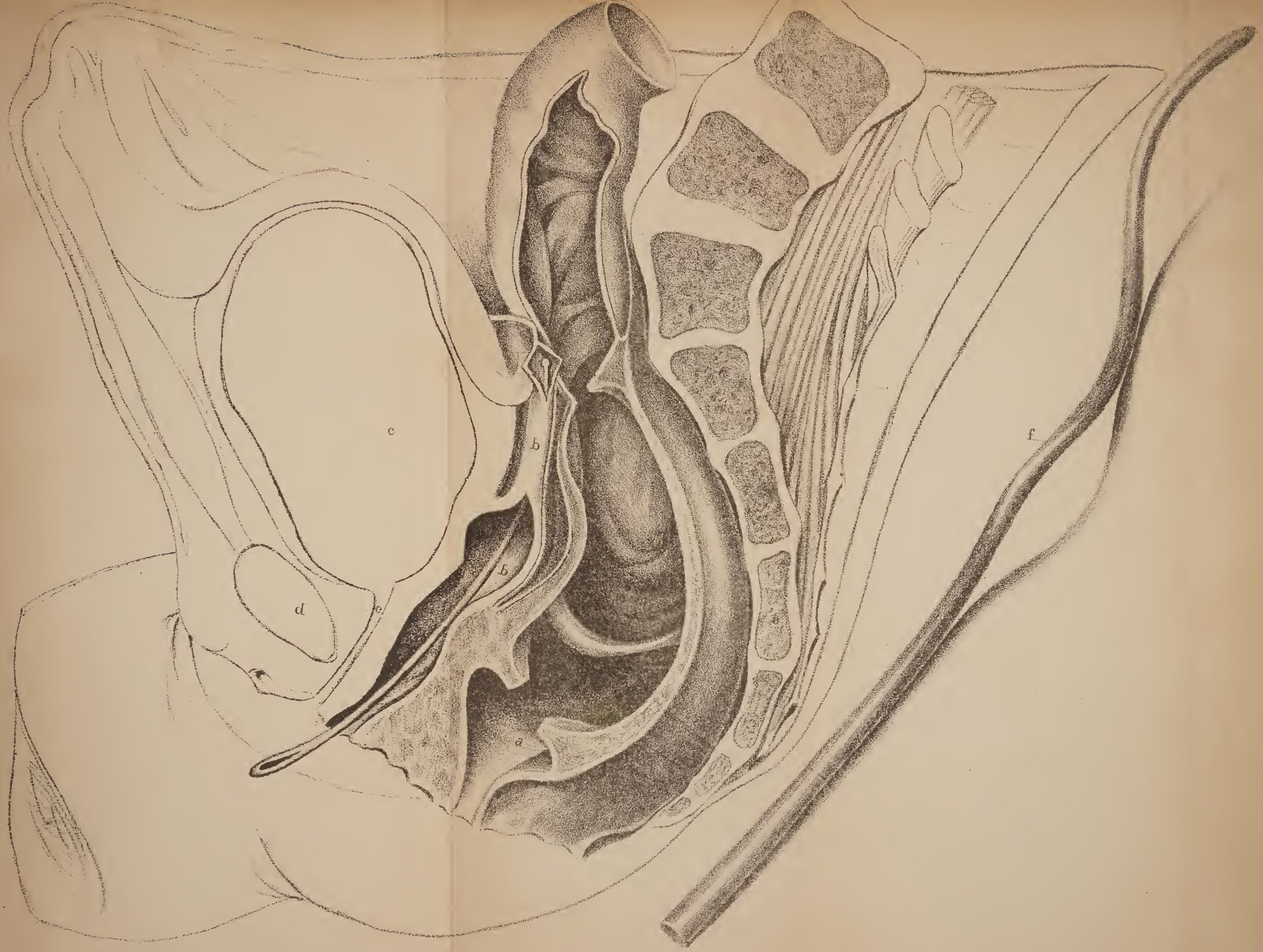

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FIG. 1

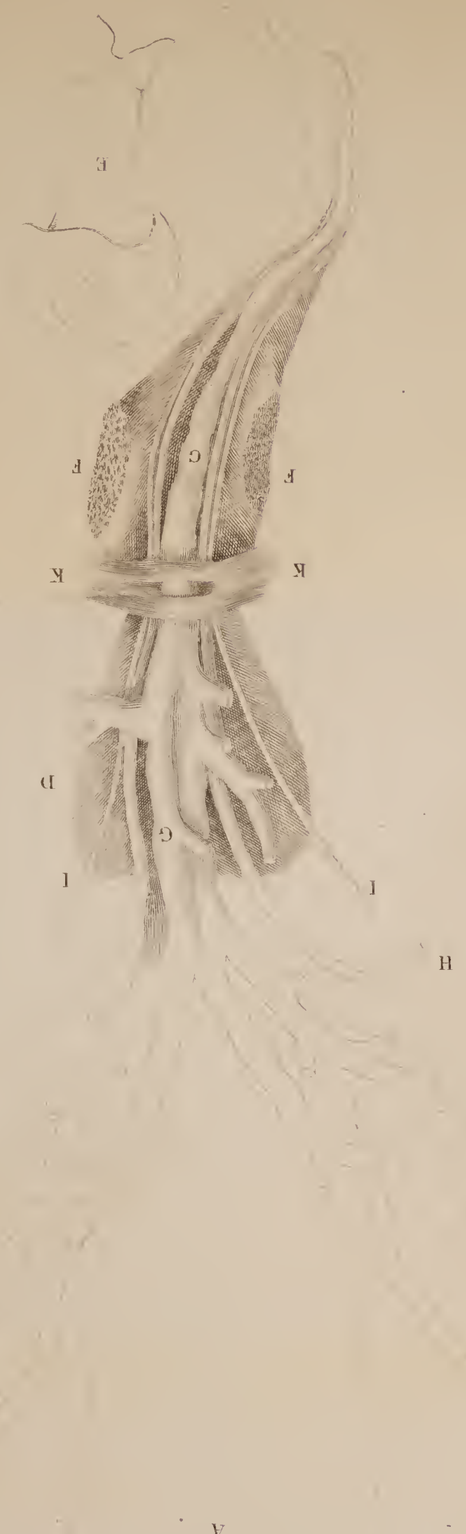


FIG. 2

PLATE V

FIG. III

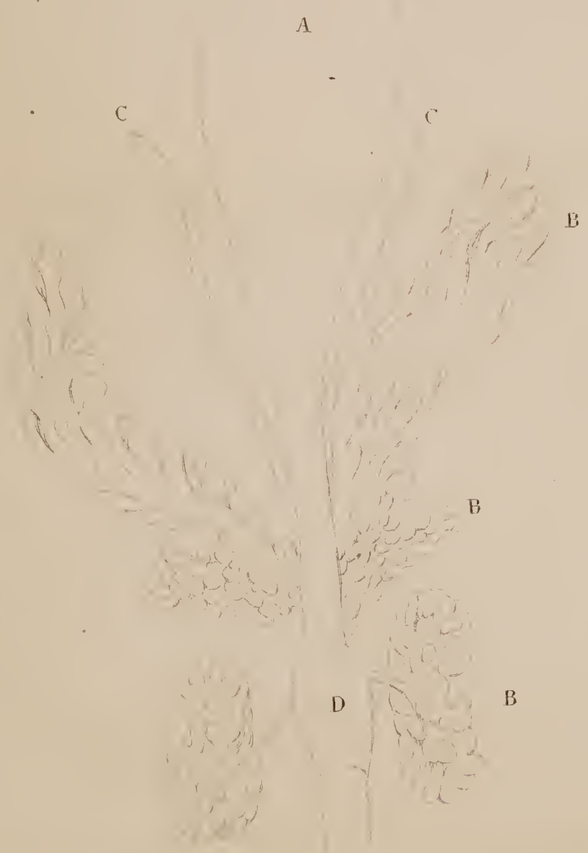
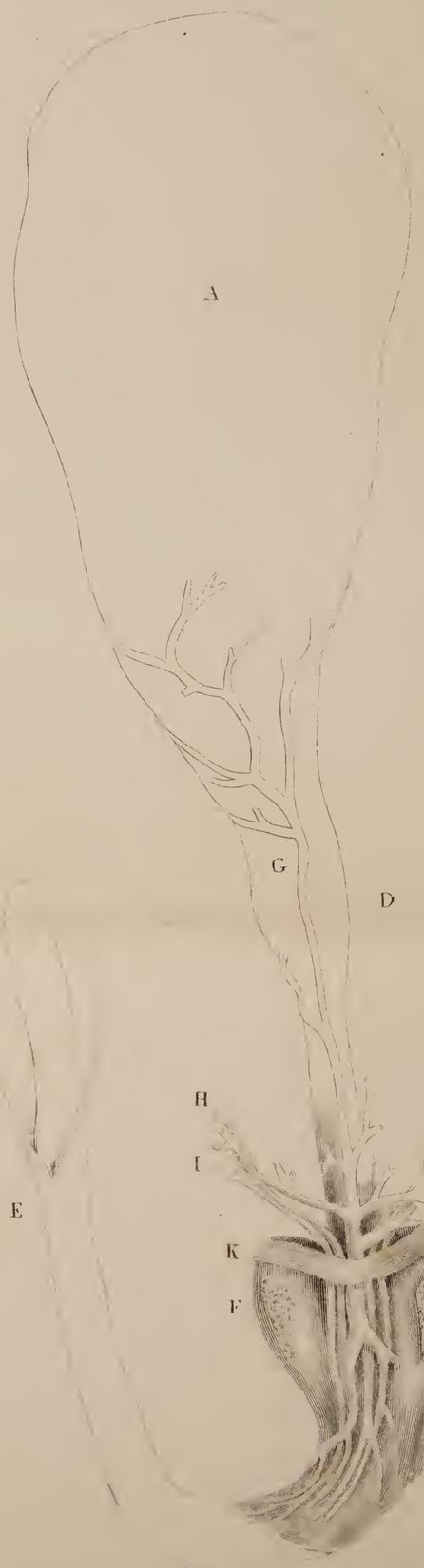


FIG. II

FIG. I



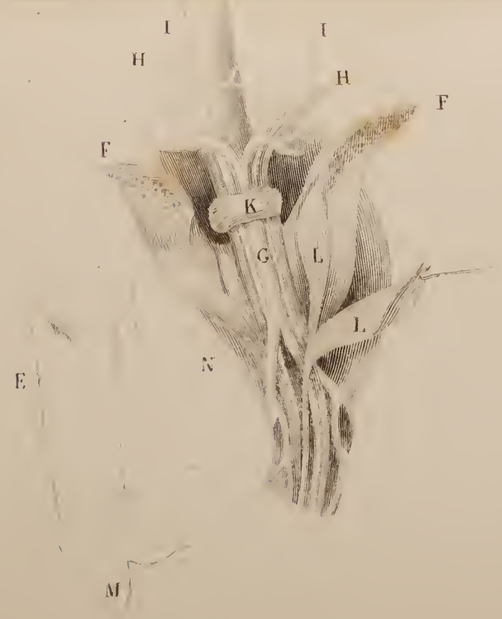
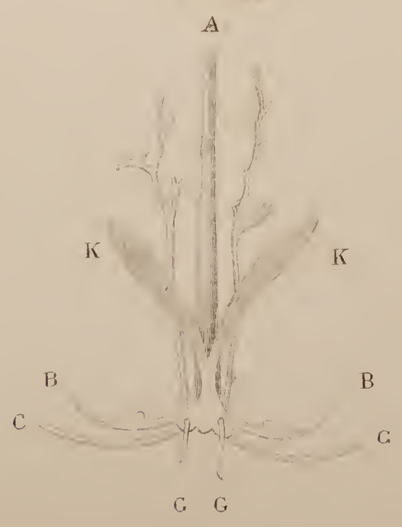


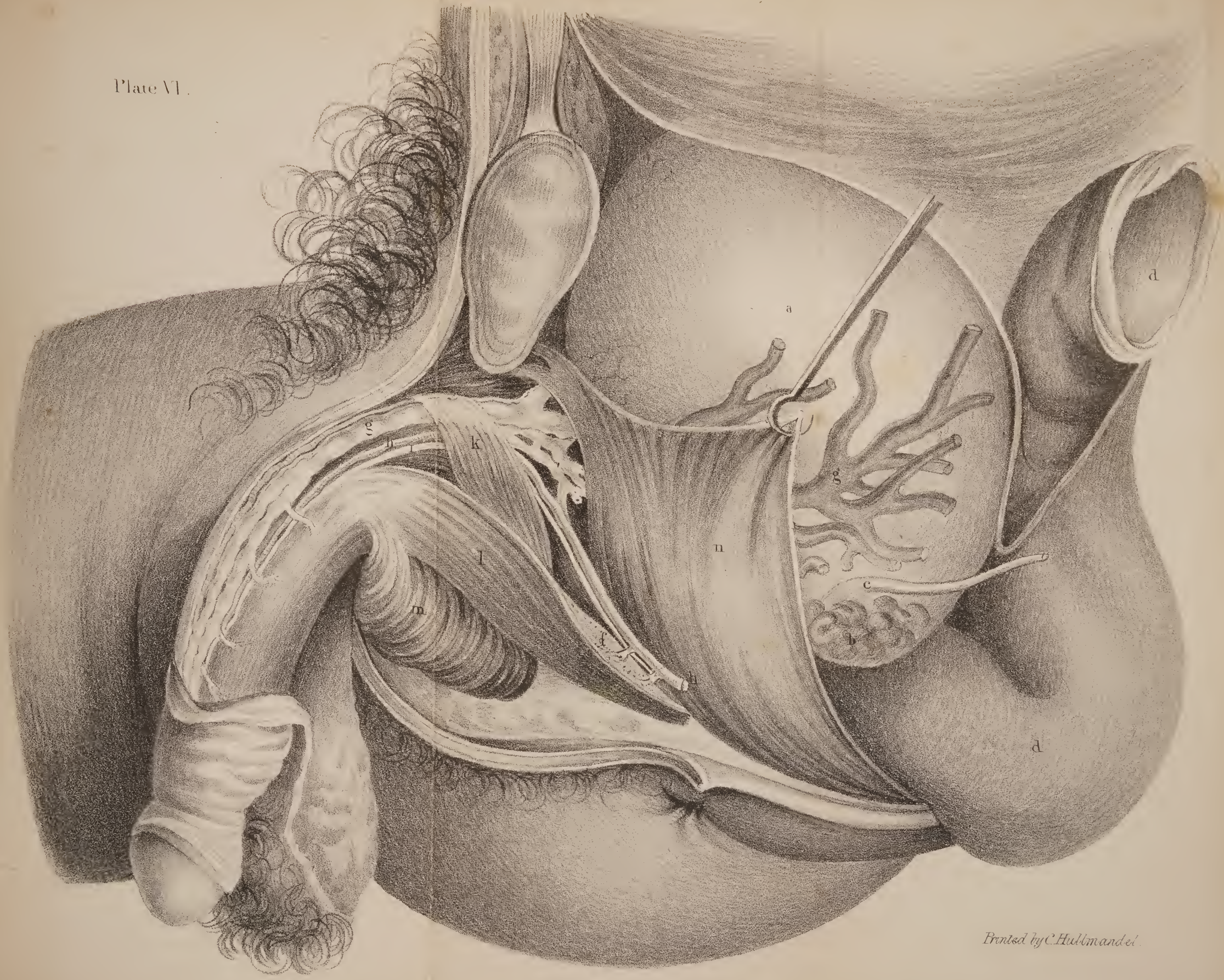
FIG. IV



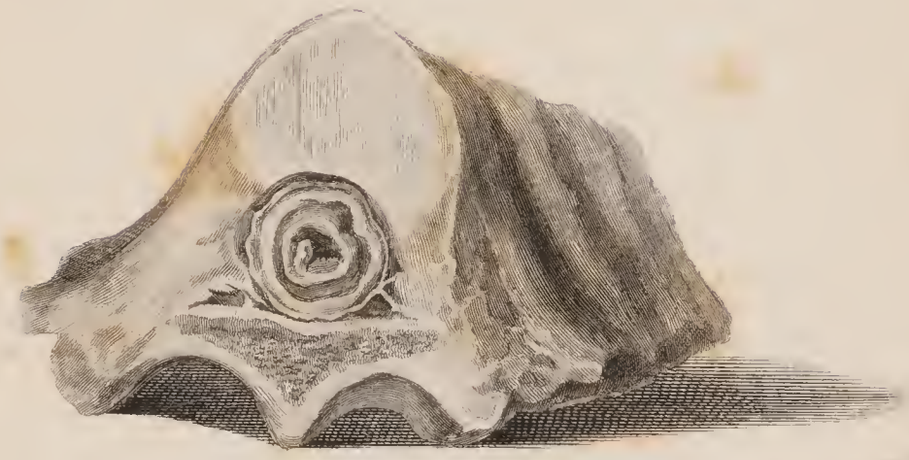
Drawn by J Houston

Engraved by Kirkwood & Son

Plate VI.



Printed by C. Hullmandel



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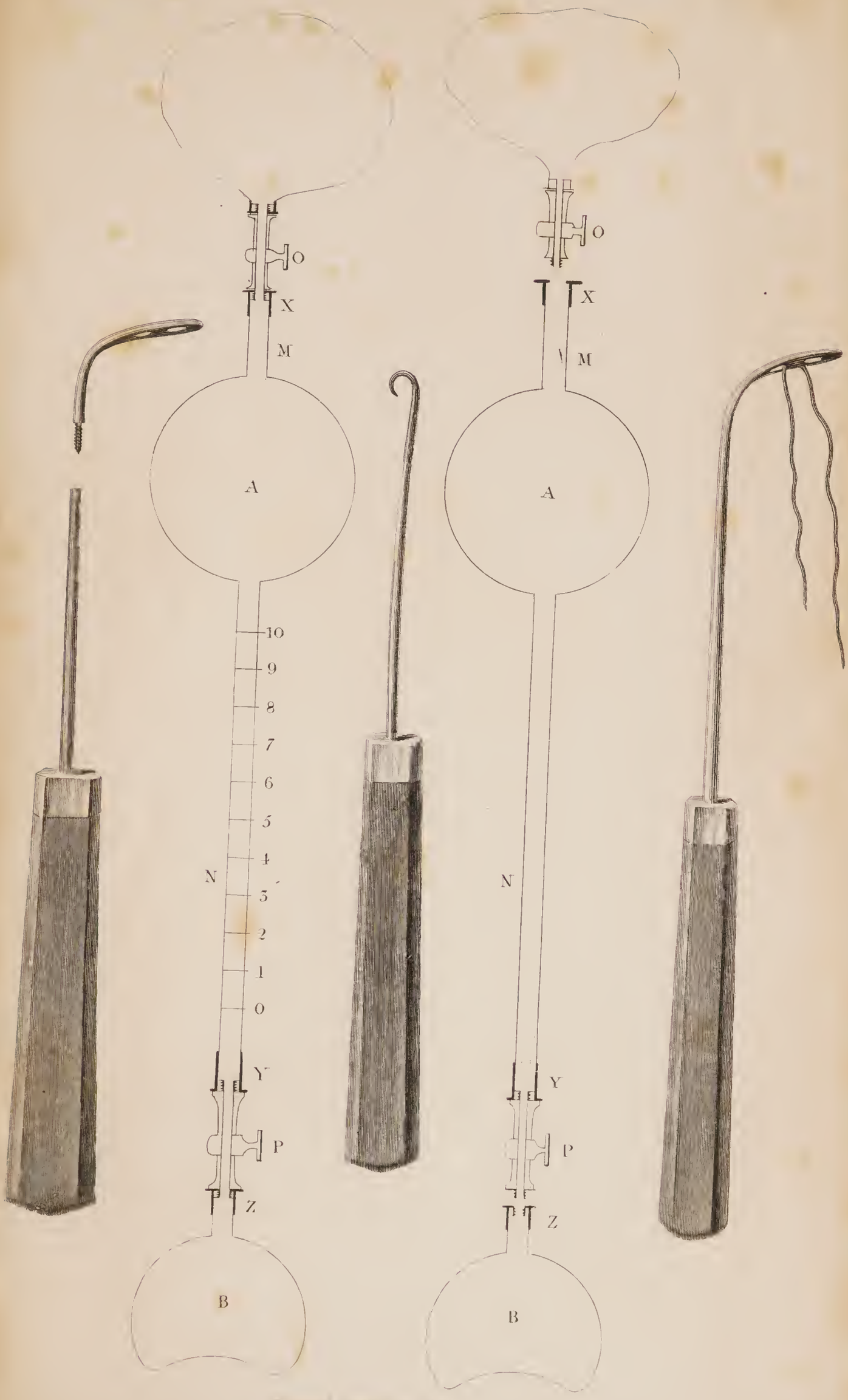

Engraved by Parkinson & Son